

Proceedings of the American Academy of Arts and Sciences.

VOL. XLV. No. 17. — MAY, 1910.

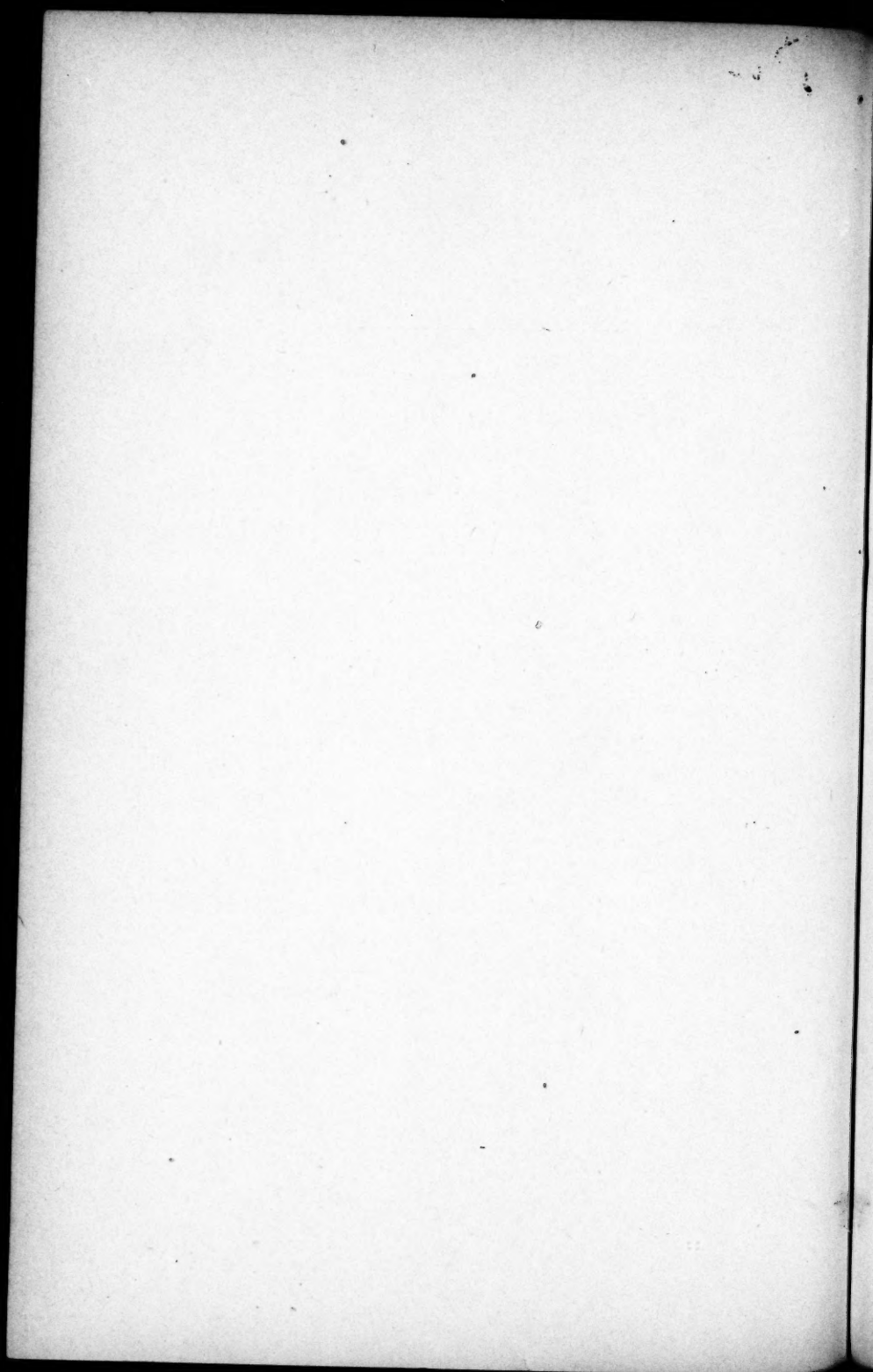
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CONTRIBUTIONS FROM THE GRAY HERBARIUM
OF HARVARD UNIVERSITY.

NEW SERIES. — No. XXXVIII.

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CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD
UNIVERSITY.—NEW SERIES, NO. XXXVIII.

Presented by B. L. Robinson, January 12, 1910. Received February 15, 1910.

I. A PRELIMINARY SYNOPSIS OF THE GENUS
ECHEANDIA.

By C. A. WEATHERBY.

THE genus *Echeandia*, founded on *Anthericum reflexum* Cav., was proposed by Ortega in his *Novarum Plantarum Decades* in 1798, and has been generally maintained by botanists since. Kunth, in 1843, recognized three species under it. Baker, monographing the *Anthericeae* in 1877, could find no clear lines of demarcation between these species and referred all the material known to him to the original species. Hemsley, though suspecting that more than one species was concerned, retained Baker's treatment because of insufficient material for a satisfactory revision. Since the date of his work, the increasingly thorough floristic exploration of Mexico has revealed a number of obviously distinct forms, several of which have been singly described by various botanists. The genus can hardly yet be considered as thoroughly understood; but a brief synopsis, which shall contrast the characters of the different species and bring together the existing information concerning them, may be of service, even though it can lay no claim to finality. The following is an attempt at such a synopsis.

Echeandia is, so far as known, a strictly American genus and chiefly confined to Mexico and Central America. The material at hand shows one species collected in Venezuela. The genus is very closely related to *Anthericum* L., from which, indeed, it is separated by only one constant character—its connate anthers. Although the American species of *Anthericum* are more numerous than those of *Echeandia*, the two groups show a distinctly parallel development, both containing species with smooth and with roughened filaments, smooth and scabrous stems and ovoid and oblong capsules. In particular, *E. macrocarpa* and *A. stenocarpum*, and *E. Pringlei* and *A. tenue* are nearly indistinguishable except by the characters of their anthers.

I have preferred, at least for the present, to regard plants which differ only in comparatively superficial foliar and habitual characters as varieties of a single species, rather than specifically distinct. I have, however, made an exception in the group of forms closely related to *E. reflexa*. Here, because of imperfect material of *E. reflexa* and *E. paniculata* and of certain puzzling specimens from Yucatan, I have not been able to arrive at a wholly clear conception of the relationships of the different forms; and I have allowed described species to stand as such, rather than make new combinations which later might have to be withdrawn.

For the loan of specimens, and for other kindly assistance in the preparation of this paper, I am indebted to Captain John Donnell Smith, to Mr. Brandegee of the University of California, Dr. Rose of the National Herbarium, and Dr. Greenman of the Field Museum. All specimens cited are in the Gray Herbarium, unless otherwise specified.

ECHEANDIA Ort. Perianth rotate, spreading or reflexed in flower, after anthesis the withered segments cohering above the ovary and persistent until pushed off by the expanding capsule; segments 6, distinct, three-nerved, about equal in length, the inner often broader. Stamens 6, hypogynous, shorter than the perianth; filaments filiform or clavate, smooth or more or less papillose- or crispate-roughened; anthers linear, hastate at base, the filament attached in the sinus, usually equalling or longer than the filaments, connate in a cylindrical tube which surrounds the style, introrse. Ovary sessile, three-lobed; style filiform, a little longer than the tube of anthers; stigma small, capitate. Capsule ovoid or oblong, triangular, loculicidal. Seeds numerous, angulate-compressed, black, minutely papillose. — Roots fibrous, clustered, often thickened or fusiform. Leaves basal or rarely the lower part of the stem leafy. Stem scapiform, bracted, simple or branched above, the branches virgate. Flowers yellow or white, on usually slender jointed pedicels in clusters of 1-4 on the stem and its branches, in the axils of chartaceous bracts, each pedicel subtended by a similar smaller bractlet; the clusters in virgate racemes.

- a. Filaments smooth; leaves strictly basal, not sheathing the stem, b.
- b. Stem scabrous, 1-4-bracted 1. *E. parviflora*.
- b. Stem smooth, 6-9-bracted, c.
- c. Leaves spreading, falcate, 15 cm. or less long . . . 2. *E. brevifolia*.
- c. Leaves erect, narrowed at base, more than 15 cm. long, d.
- d. Leaves broad, 2 cm. or more 3. *E. nodosa*.
- d. Leaves narrow, not over 1 cm. wide . 3. *E. nodosa*, var. *lanceolata*.

- a. Filaments more or less crispate- or papillose-roughened, *e*.
- e. Leaves broad, 0.8–3.5 cm. wide, membranous in drying, soft, the principal nerves usually connected by conspicuous cross-veinlets, *f*.
- f. Stem smooth; flowers chiefly yellow, as far as known, *g*.
- g. Capsule ovoid or short-oblong, 6–9 mm. long, 5–7 mm. broad; inner perianth-segments oblong-lanceolate, little broader than the outer, *h*.
- h. Leaves lanceolate or even ovate-lanceolate, 20–25 cm. long, 2.8–5 cm. wide, not more than 8 times as long as wide.
- 4. *E. macrophylla*.
- h. Leaves linear or narrowly lanceolate, 24–42 cm. long, 1.2–2.3 cm. wide, at least 12 times as long as wide.
- 4. *E. macrophylla*, var. *longifolia*.
- g. Capsule oblong, 1–1.8 cm. long, 4–6 mm. wide; inner perianth-segments ovate or ovate-lanceolate, often much broader than the outer, *i*.
- i. Leaves for the most part sheathing the stem but confined to its base; stem about 2-bracted, *j*.
- j. Leaves narrow, 8–13 mm. wide, *k*.
- k. Leaves usually several (6–10), suberect . . . 5. *E. macrocarpa*.
- k. Leaves few (2–4), spreading, short in proportion to the stem.
- 5. *E. macrocarpa*, var. *formosa*.
- j. Leaves broader, 1.5–2 cm. wide 6. *E. reflexa*.
- i. Stem leafy for about a third of its height, the leaves passing gradually into 3–6 reduced bracts 7. *E. paniculata*.
- f. Stem scabrous, at least below; flowers white 8. *E. albiflora*.
- e. Leaves narrow, 2–5 mm. wide or less, firm, closely and prominently veined, mostly without visible cross-veinlets, *l*.
- l. Leaves 2–5 mm. wide, minutely scabrous beneath; stem 2-bracted; inflorescence mostly branched 9. *E. flexuosa*.
- l. Leaves 2 (–2.5) mm. wide or less, scabrous-ciliate on the margins, elsewhere smooth; stem 3–6-bracted; inflorescence mostly simple.
- 10. *E. Pringlei*.

1. *E. PARVIFLORA* Baker. Leaves membranous, linear, not very prominently nerved, 4–8 mm. wide, 6–22 cm. long, suberect or somewhat spreading and falcate; stem scabrous or hirtellous at least below, simple or sometimes with as many as 5 branches; pedicels rather short and stout, in fruit 6–8 mm. long, jointed below the middle or toward the base; filaments smooth; capsule (seen on the Pringle specimen only) broadly oblong, 3.5–5 mm. wide, 6–9 mm. long. — Engl. Bot. Jahrb. viii. 209 (1887). — GUATEMALA: Santa Rosa, alt. 900 m., May, 1892, *John Donnell Smith*, Pl. Guat., no. 3528. MEXICO: Mt. Orizaba, Cordoba, 830 m., Aug. 20, 1891, *Henry E. Seaton*, no. 485, in part. State of Guerrero, dry hillsides, near Iguala, alt. 915 m., July 29, 1907, *Pringle*, no. 10,388.

2. *E. BREVIFOLIA* Watson. Leaves membranous, with cross-veinlets,

short, 12-15 cm. long, 6 mm. wide, acuminate, spreading and somewhat falcate, not sheathing the stem; stem about 6 dm. tall, smooth, 6-bracted, with few (3-4) branches; pedicels slender, in fruit 11-14 mm. long, jointed below the middle; filaments smooth; capsule short-oblong, 4-4.5 mm. wide, 7-8 mm. long. — Proc. Am. Acad. xxi. 441 (1886). — MEXICO: State of Chihuahua, Hacienda San Miguel near Batopilas, Sept., 1885, *Palmer*, no. 229.

3. *E. NODOSA* Watson. Leaves membranous, with cross-veinlets, linear-lanceolate, narrowed at base, not sheathing the stem, 18-40 cm. long, 2-2.7 cm. wide; stem smooth, 6-9-bracted, with 6-7 branches, which rarely branch again; pedicels slender, jointed below the middle, in fruit 11-14 mm. long; filaments smooth, shorter than the anthers; capsule oblong, 3.5-4 mm. wide, 8-9 mm. long. — Proc. Am. Acad. xxvi. 156 (1891). ? *Phalangium ramosissimum* Presl, Rel. Haenk. i. 127 (1825). ? *Anthericum ramosissimum* R. & S. Syst. vii. 469 (1829). ? *Echeandia Haenkeana* Kunth, Enum. iv. 629 (1843). — MEXICO: State of Jalisco, near Guadalajara, 12 Nov., 1888, *Pringle*, no. 2151. Dry rocky bluffs of barranca near Guadalajara, 23 Sept., 1891, *Pringle*, no. 3870. — Flowers apparently small as in *E. macrophylla*, the perianth-segments narrow, whitish in drying. From Presl's description it seems highly probable that this plant is the same as his *Phalangium ramosissimum*. In the absence of authentic material, however, I hesitate to make the new combination required by the transfer of Presl's species to *Echeandia*.

Var. *lanceolata*, n. var., a forma typica recedit habitu graciliore, foliis angustioribus 6-10 mm. latis, pedicellis 1 cm. longis, capsulis minoribus 3.5 mm. latis 5-6 mm. longis. — MEXICO: State of Sinaloa, Copradia, Oct. 20, 1904, *Brandeggee*, type (in Herb. Univ. Cal., sheet no. 119,863). Ymala, Sept. 28 to Oct. 8, 1891, *Palmer*, no. 1677. Culiacan, Sept. 17, 1904, *Brandeggee* (in Herb. Univ. Cal., sheet no. 119,856). — The name *lanceolata* was applied to this plant, on herbarium labels, by Mr. Brandeggee, who at that time was inclined to regard it as a good species. It seems, however, hardly specifically distinct from *E. nodosa*. The specimen on sheet no. 119,856 of the University of California Herbarium has broader leaves than the other two plants cited and may be regarded as a transitional form between the extreme development of the variety and typical *E. nodosa*.

4. *E. macrophylla* Rose, in hb., foliis omnino radicalibus caulis basin vaginantibus lanceolatis 20-25 cm. longis 2.8-5 cm. latis in apicem acuminatum angustatis, caule 7 dm. alto glabro 2-bracteato, ramis 5-6 saepe 2 ex axilla unica, pedicellis infra medium vel prope basin articulatis, floribus parvis, perianthii segmentis 1-1.3 cm. longis

lineari-vel oblongo-lanceolatis latitudine subaequalibus, interioribus paulum latoribus acutis, exterioribus obtusiusculis, filamentis clavatis modice crispatis in floribus (novellis) visis quam antherae duplo brevioribus, capsulis ovicideis 7 mm. longis 5 mm. latis. — MEXICO: State of San Luis Potosi, grassy slopes, Las Canoas, 16 June, 1890, *Pringle*, no. 3183.

Var. *longifolia*, n. var., foliis late linearibus 24–42 cm. longis 1.2–2.3 cm. latis saepius solum radicalibus, caule 6.2–9 cm. alto, ramis paucis (1–3), pedicellis 1–2 cm. longis, filamentis antheras aequantibus vel eis brevioribus, capsulis ovoideis vel breviter oblongis 7–9 mm. longis 5–6 mm. latis, ceteris praecedentis. — ? *E. terniflora* Lindley, Bot. Reg. xxv. Misc. no. 144 (1839), not Ort. *E. terniflora* Baker, Journ. Linn. Soc. xv. 288 (1877), in part, not Ort.; Hemsl. Biol. Cent.-Am. Bot. iii. 376, in part, not Ort. — MEXICO: State of Oaxaca, vicinity of Choapam, alt. 1150–1400 m., July 28 & 29, 1894, *Nelson*, no. 910, type (in U. S. Nat. Herb.). State of Vera Cruz, Zacuapan, dry sunny fields, Nov., 1908, *Purpus*, no. 3761. Orizaba, *Botteri*, no. 1185. Ibid., Cordoba, 830 m., Aug. 20, 1891, *H. E. Seaton*, no. 485, in part. Vallée de Cordova, 23 Avril, 1865–66, *Bourgeau*, no. 2307. VENEZUELA: prope coloniam Tovar, 1854–55, *Fendler*, no. 1549. The Bourgeau plant has entirely the habit and the fruit of this species, but the filaments are nearly smooth. It seems somewhat transitional between this and the preceding group. — Flowers yellow according to Lindley's description; white with yellow anthers according to a note on Fendler's label. The plant seen by Lindley was possibly *E. reflexa*, but from his description, seems rather to belong here.

5. *E. MACROCARPA* Greenman. Leaves chiefly basal, suberect, rather narrowly linear, (6) 8–15 mm. broad, membranous, the cross-veinlets usually prominent, long in proportion to the stem, usually 6–10 in number; stem 1–2-bracted, glabrous, simple or few-branched; pedicels jointed below the middle, rather stout, in fruit 1–1.7 cm. long; flowers apparently rather large, the perianth-segments 1.5–1.7 cm. long, the inner ovate-lanceolate; filaments moderately roughened, equalling or slightly longer than the anthers; capsules oblong, 1–1.8 cm. long, 4–6 mm. wide. — Proc. Am. Acad. xxxix. 73 (1903). *E. terniflora* Hemsl. Biol. Cent.-Am. Bot. iii. 376, in part, not Ort. — MEXICO: State of San Luis Potosi, near Tancanhuitz, May 2, 1898, *Nelson*, no. 4393, type; region of San Luis Potosi, alt. 1850–2450 m., *Parry & Palmer*, no. 890. "Mexico," no locality, *Ehrenberg*, no. 31. "Chiapas, etc.," *Ghiesbreght*, no. 875. Vallée de Mexico, Santa Fé, 6 Juillet, 1865–66, *Bourgeau*, no. 413. Guanajato, 1880, *A. Dugès*. State of Oaxaca, vicinity of Cerro San Felipe, alt. 3000–3400 m., 1894, *Nelson*, no. 1056

(in U. S. Nat. Herb.). — A specimen from Mt. Orizaba, 3000 m., Aug. 5, 1891, *H. E. Seaton*, no. 180, is probably a reduced form of this species. — Flowers yellow according to Ghiesbreght's label. Difficult to separate from *E. reflexa*, except by purely habitual characters.

Var. *formosa*, n. var., foliis paucis (circa 4) caulis basin extremam vaginantibus patulis caule duplo brevioribus late linearibus circa 1 cm. latis summum 2 dm. longis, caule simplice, pedicellis gracilibus, floribus magnis aureis, ceteris formae typicae. — MEXICO: State of Chiapas, near San Christobal, alt. 2100–2500 m., Sept. 18, 1895, *Nelson*, no. 3143 (in U. S. Nat. Herb. Sheet no. 233,087). — Flowers "rich yellow" according to Nelson's note.

6. *E. REFLEXA* (Cav.) Rose. Leaves rather closely sheathing the base of the stem, broadly linear, 27–40 cm. long, 1.5–2.2 cm. wide, acuminate, membranous, the cross-veinlets prominent; stem about 7 dm. tall, smooth, rather slender, bearing 2–3 foliaceous bracts, in the single specimen seen with two branches; pedicels jointed below the middle, in fruit 1.4–1.7 cm. long; perianth-segments broad, 1.5 cm. in length; filaments strongly roughened, at least in the young flower shorter than the anthers; capsule (immature) oblong, 1 cm. long, 4 mm. wide. — Contr. U. S. Nat. Herb. x. 93 (1906). *Anthericum reflexum* Cav. Ic. Pl. iii. 21, t. 241 (1795); Willd. Sp. Pl. ii. 140 (1799). *Echeandia terniflora* Ort. Nov. Pl. Dec. 90, 135, & 136, t. 18 (1798); Redouté, Lil. vi. t. 313 (1812); Kunth, Enum. iv. 627 (1843); Baker, Journ. Linn. Soc. xv. 288 (1877), in part; Hemsl. Biol. Cent.-Am. Bot. iii. 376 (1885), in part. *Phalangium reflexum* Poir. Encycl. Meth. Bot. v. 249 (1804). *Conanthera Echeandia* Pers. Syn. i. 370 (1805); Link & Otto, Ic. Pl. Rar. 5, t. 3 (1828). — MEXICO: State of Morelos, ledges, Sierra de Tepoxtlán, near Cuernavaca, alt. 2300 m., August 22, 1906, *Pringle*, no. 10,289. — Although the form represented by Mr. Pringle's plant here cited was the first of the genus to be collected, it seems not to be common. His specimen is the only one I have seen which, in its combination of broad leaves, few-branched stem, yellow, rather broad perianth-segments, strongly roughened filaments and oblong capsules, agrees well with Cavanilles's and Ortega's plates.

7. *E. PANICULATA* Rose. Stem tall, with 6–7 panicled branches, leafy above the base for about a third of its height, the leaves passing gradually into 3–6 reduced bracts; leaves membranous, with cross-veinlets, linear, long-attenuate at apex, up to 5 dm. long, 1.5–3 cm. wide; flowers rather large, yellow; perianth-segments 1.5 cm. long, the outer oblong-linear, the inner ovate, 6 mm. wide; filaments clavate, strongly roughened, about equalling the anthers; capsule not seen. — Contr. U. S. Nat. Herb. x. 93 (1906). — MEXICO: State of Morelos,

near El Parque, Sept. 21, 1903, *Rose & Painter*, no. 844 (in U. S. Nat. Herb., sheets nos. 454,954 & 454,955). — No fruit of this species has been preserved, but its floral characters place it clearly very near *E. reflexa*. So far as the material at hand shows, it differs from that species only in its more leafy stem and more branched inflorescence and may very probably prove to be no more than a variety of it. — Here are doubtfully placed the specimens from two collections of *C. F. Gaumer* namely from Yucatan, Izamal, Sept., 1895, no. 843 and Chicankanab, no. 1995 (the latter in Herb. Field Mus. Nat. Hist., sheet no. 58,793). These specimens have neither fruit nor good flowers and in their absence can hardly be placed definitely. They have mostly a much-branched inflorescence, several(7-8)-bracted stem and the leaves pass abruptly into the much reduced bracts. In this respect they differ from *E. paniculata*; and the branches of the inflorescence are more slender and the flower-buds smaller than in either that species or *E. reflexa*, although the plants are quite as robust.

8. *E. ALBIFLORA* (Schlecht. & Cham.) Mart. & Gal. Leaves basal, several, lanceolate-linear, narrowed to an acute apex, the principal nerves united by transverse veinlets, membranous, glabrous, about 36 cm. long, 1.8-2 cm. wide; stem scabrous or hirtellous below; inflorescence paniculate; pedicels slender, 10 mm. long, jointed below the middle; flowers white; perianth-segments lanceolate; filaments retrorsely papillose-crispate, equalling the anthers; capsule? — Bull. Acad. Brux. ix. 386 (1842); Kunth, Enum. iv. 628 (1843). *Conanthera albiflora* Schlecht. & Cham. Linnaea, vi. 50 (1831). *Echeandia leucantha* Klotzsch, fide Kunth, l. c. — I have seen no material referable to this species. The above description is taken chiefly from that of Kunth.

9. *E. FLEXUOSA* Greenman. Leaves firm, closely and prominently veined, suberect, minutely scabrous beneath, 2-5 mm. wide, variable in length (reaching 8 dm.), long-acuminate; stem 9 dm. high or less, smooth, 2-3-bracted, the lower bract sometimes elongated and setaceous, reaching 15 cm. in length; pedicels jointed near or below the middle, rather stout, in fruit 12-16 mm. long; flowers rather large with lanceolate perianth-segments; filaments moderately roughened, shorter than or nearly equalling the anthers; capsule oblong, 6-9 mm. long, 3-4 mm. wide. — Proc. Am. Acad. xxxix. 73 (1903). — MEXICO: State of Oaxaca, Mts. of Jayacatlan, alt. 1400 m., 10 Sept., 1894, *Lucius C. Smith*, no. 188. State of Jalisco, Rio Blanco, July, 1886, *Palmer*, no. 185; bluffs of the barranca of Guadalajara, 1400 m., 19 July, 1902, *Pringle*, no. 11,197.

10. *E. PRINGLEI* Greenman. Leaves firm, closely and prominently

veined, scabrous-ciliate on the margins, elsewhere smooth, 1.5-2 (2.5) mm. wide, 1-3 dm. long; stem 2.7-6 dm. high, slender, glabrous, simple, bearing 3-6 bracts; pedicels jointed near the base, in fruit 10-14 mm. long; filaments moderately roughened, shorter than the anthers; capsule oblong, 3-3.5 mm. wide, 7 mm. long. — Proc. Am. Acad. xl. 28 (1904). — MEXICO: State of Jalisco, dry calcareous hills above Etzatlan, 2000 m., 24 Oct., 1904, *Pringle*, no. 8812; grassy plains near Guadalajara, 1500 m., 4 Oct., 1903, *Pringle*, no. 11,715; hillsides of Zapotlan, alt. about 1500 m., Aug. 8, 1905, *P. Goldsmith*, no. 122; near Etzatlan, Oct. 2, 1903, *Rose & Painter*, no. 7544 (in U. S. Nat. Herb.).

EXCLUDED SPECIES.

E. eleutherandra K. Koch, Ind. Sem. Hort. Berol. App. 4 (1861) = *Anthericum echeandroides*, acc. to Baker.

E. graminea Mart. & Gal. Bull. Acad. Brux. ix. 387 (1842) = *Anthericum leptophyllum*.

E. leptophylla Benth. Pl. Hartw. 25 (1840) = *Anthericum leptophyllum*.

E. scabrella Walp. Ann. iii. 1010 (1853) = *Anthericum scabrellum*.

E. pusilla Brandege, Univ. Cal. Pub. Bot. iii. 377 (1909) = form of *Anthericum leptophyllum*.

II. SPERMATOPHYTES, NEW OR RECLASSIFIED, CHIEFLY
RUBIACEAE AND GENTIANACEAE.

By B. L. ROBINSON.

Ranunculus trisectus Eastwood, n. sp.,¹ glaber vel paulo pilosus 1-2 dm. altus simplex vel 2-3-ramosus, ramis ascendentibus; foliis radicalibus orbicularibus trisectis, diametro 2-3 cm., basi reniformibus cum sinu saepissime angusto; segmentis approximatis, medio late cuneato, lateralibus inaequaliter bipartitis, superiore parte trilobata majore; omnibus lobulis similibus oblongis 2-3 mm. latis duplo longioribus, apice et basi callosis, sinibus obtusis; petiolis striatis basi membranaceis dilatatis et persistentibus; foliis caulinis 1-3 sessilibus vel breviter petiolatis 3-5-sectis, segmentis integris vel lobatis, ultimis lobulis oblongo-linearibus ad apicem et sinum callosis, basi petiolorum vel foliorum membranaceo amplexicauli; pedunculis altis, fructiferis

¹ This species, elaborated by Miss Alice Eastwood from material in the Gray Herbarium, is here published at her request.

saepe 5-6 mm. longis, floriferis multo brevioribus; sepalis purpurascens orbiculatis 6-7 mm. latis et longis, concavis, cum pilis canis et sericeis parce investis; petalis aurantiacis cuneatis 5-15 mm. latis, sepala multo superantibus, apice undulatis rotundatis, basi cum squamula hemicycla supra brevem unguem; staminibus numerosis, loculis antherarum separatis, dorso filamentis planis; acheniis spicatis, receptaculo subulato albo membranaceo pilosello; stylis purpureis vel flavis rectis vel curvatis et divaricatis, apice saepe deciduis. — Alpine Wallowa mountains, eastern Oregon, altitude 2745 m., growing at base of cliffs, *William C. Cusick*, 16 August, 1907, no. 3200 (type, in Gray Herb.). Under the same species are included with some doubt the following, all collected by Mr. Cusick at the same locality: — no. 3188, strong growing plants, some with smooth, others with hairy akenes but otherwise identical; 3325 d, with akenes all hairy; 3326 with both hairy and smooth akenes. Among the older specimens in the Gray Herbarium are 3219 a collected in 1907 with heads of akenes more globular and hairy, styles purplish, 1513 of 1888 and 2006 of 1898. These all show great variability in size of flowers and height of stems but the plants have an individuality which makes them appear quite distinct from *R. Suksdorfii* with which they have been confused. In general this species differs from *R. Suksdorfii* in having more orbicular leaves with more deeply cut divisions, narrower basal sinus, the ultimate lobules obtuse and narrowing slightly to the base thus making the dividing space rounded rather than acute. The akenes are not angled, hairy instead of smooth, and the style curves outward more noticeably and is less strongly subulate.

Tococa Peckiana, n. sp., fruticosa 3-6 m. alta; ramis valde compressis brunneis fistulosis parce praesertim nodos versus glanduloso-hispidulis; foliis late ovatis modice disparibus membranaceis 5-nerviis supra appresse setulosis rugosis siccitate nigrescentibus subtus tomentellis flavidi-viridibus margine integriusculis hispidulis apice angustissime caudato-attenuatis, majoribus 1.4-2.2 dm. longis 7-12 cm. latis, petiolo crasso hispidulo 2-2.5 cm. longo prope apicem vesciculifero, vesciculis ovoideis subcoriaceis 1-1.2 cm. longis; foliis minoribus 1.2-1.5 dm. longis ab vesciculis destitutis; panicula terminali pedunculata ca. 8 cm. longa, ramis patentibus dichotomo-cymiferis; floribus sessilibus; calycis tubo subgloboso 4-5 mm. diametro parce glanduloso-hispidulo, limbo brevissimo membranaceo obscure 5-lobato; petalis ovatis subcoriaceis minute papillosis. — BRITISH HONDURAS, in thickets, near Manatee Lagoon, 16 July, 1905, *Prof. Morton E. Peck*, no. 68 (type, in Gray Herb.). A species of the § *Hypophysca* and related apparently to *T. guyanensis* Aubl., from which, however, it may be

readily distinguished by its less unequal, more nearly entire leaves, smaller, thicker-walled vesicles, and especially by its sessile flowers.

Cynoctonum oldenlandioides (Wall.), n. comb. *Mitreola oldenlandioides* Wall. Cat. no. 4350 (1828), without description; G. Don, Syst. iv. 172 (1837), where distinctions are slightly indicated; A.D.C. Prod. ix. 9 (1845), where described and distinguished chiefly by the widely divergent lobes of the fruit; Hook. Ic. t. 827 (1852), where admirably figured. The change from *Mitreola* to *Cynoctonum* becomes necessary under the Vienna Rules, though it is certainly to be regretted that the well established *Mitreola* was not included in the list of nomina conservanda.

Cynoctonum paniculatum (Wall.), n. comb. *Mitreola paniculata* Wall. Cat. no. 4349 (1828), without description; G. Don, Syst. iv. 171 (1837); A.D.C. Prod. ix. 9 (1845); Progel in Mart. Fl. Bras. vi. pt. 1, 266, t. 71 (1868).

Cynoctonum pedicellatum (Benth.), n. comb. *Mitreola pedicellata* Benth. Jour. Linn. Soc. i. 91 (1857).

Centaurium Beyrichii (Torr. & Gray), n. comb. *Erythraea trichantha* β *angustifolia* Griseb. in DC. Prod. ix. 60 (1845). *E. Beyrichii* Torr. & Gray ex Torr. in Marey, Expl. Red Riv. 291 (1853).

Centaurium cachanlahuen (Molina), n. comb. *Gentiana Cachanlahuen* Molina, Sagg. Chil. 147 (1782); also in the German edition by Brandis, 310 (1786). *G. peruviana* Lam. Encycl. ii. 642 (1786). *Chironia chilensis* Willd. Sp. Pl. i. 1067 (1798). *Erythraea chilensis* Pers. Syn. i. 283 (1805). *E. Cachanlahuen* Roem. & Schultes, Syst. iv. 167 (1819).

CENTURIUM CALYCOSUM (Buckl.) Fernald, var. *nana* (Gray), n. comb. *Erythraea calycosa*, var. *nana* Gray, Syn. Fl. ii. pt. 1, 113 (1878).

Centaurium floribundum (Benth.), n. comb. *Erythraea floribunda* Benth. Pl. Hartw. 322 (1849).

Centaurium macranthum (Hook. & Arn.), n. comb. *Erythraea macrantha* Hook. & Arn. Bot. Beech. 438 (1841). *E. mexicana* Griseb. ex Hook. & Arn. l. c. 302, 438. *Gyrandra chironioides* Griseb. in DC. Prod. ix. 44 (1845). *Erythraea chironioides* Torr. Bot. Mex. Bound. 156 (1859), in part.

Centaurium madrense (Hemsl.), n. comb. *Erythraea madrensis* Hemsl. Biol. Cent.-Am. Bot. ii. 346 (1882). *Gyrandra chironioides* Griseb. in Seem. Bot. Herald. 318 (1856), not Griseb. in DC. Prod. ix. 44 (1845).

Centaurium micranthum (Greenm.), n. comb. *Erythraea micrantha* Greenm. Proc. Am. Acad. xxxix. 83 (1903).

Centaurium multicaule, n. sp., verisimiliter bienne multicaule

caespitosum 5-10 cm. altum basi densissime foliatum; radice simplice 2-6 cm. longa; caulibus 4-22 subsimplicibus 4-angulatis gracilibus apice 1-2 (rarius 3)-floris, ramis 1-2 erectis; foliis radicalibus rosulatis obovato-spatulatis 1-2 cm. longis 4-8 mm. latis apice rotundatis basi in petiolum attenuatis; foliis caulinis 3-4-jugis lineari-oblongis vel linearibus 8-10 mm. longis 1-2.7 mm. latis 1-nerviis crassiusculis; pedunculis 1.5-4 cm. longis erectis nudis unifloris; floribus pentameris; calycis lobis linearibus attenuatis 6 mm. longis margine scariosis quam tubus corollae paulo brevioribus; corolla 1.5 cm. longa tubo constricto flavido, limbi lobis ellipticis 6 mm. longis 2 mm. latis apice rotundatis; filamentis antheras subaequantibus gracilibus; stigmate capitato-subbilobo. — MEXICO: moist meadow, Hacienda of St. Diego, Chihuahua, 2 June, 1891, *C. V. Hartman*, no. 717 (type, in Gray Herb.). This plant of somewhat striking tufted habit was distributed as *Erythraea calycosa*, but differs from that species rather markedly in its lower stature, much smaller flowers, and clustered chiefly 1-flowered stems.

Centaurium nudicaule (Engelm.), n. comb. *Erythraea nudicaulis* Engelm. Proc. Am. Acad. xvii. 222 (1882).

Centaurium pauciflorum (Mart. & Gal.), n. comb. *Erythraea pauciflora* Mart. & Gal. Bull. Acad. Brux. xi. 373 (1844).

Centaurium Pringleanum (Wittr.), n. comb. *Erythraea Pringleana* Wittr. Bot. Gaz. xvi. 85 (1891).

Centaurium quitense (HBK.), n. comb. *Erythraea quitensis* HBK. Nov. Gen. et Spec. iii. 178 (1818). *Cicandia quitensis* Griseb. Linnaea, xxii. 33 (1849). *Erythraea divaricata* Schaffner ex Schlecht. Bot. Zeit. xiii. 920 (1855). *Erythraea chilensis* Benth. Pl. Hartw. 89 (1842), non Pers. *Centaurium divaricatum* Millsp. & Greenm., Field Columb. Mus. Bot. Ser. ii. 309 (1909).

Centaurium retusum (Rob. & Greenm.), n. comb. *Erythraea retusa* Rob. & Greenm. Proc. Am. Acad. xxxii. 38 (1896).

Centaurium setaceum (Benth.), n. comb. *Erythraea setacea* Benth. Bot. Sulph. 128 (1845).

Centaurium tenuifolium (Mart. & Gal.), n. comb. *Erythraea macrantha* β *major* Hook. & Arn. Bot. Beech. 438 (1841). *E. tenuifolia* Mart. & Gal. Bull. Acad. Brux. xi. 372 (1844). *Gyandra speciosa* Benth. Bot. Sulph. 127, t. 45 (1845).

Centaurium trichanthum (Griseb.), n. comb. *Erythraea triantha* Griseb. Gen. et Spec. Gent. 146 (1839).

Centaurium venustum (Gray), n. comb. *Erythraea chironioides* Torr. Bot. Mex. Bound. 156, t. 42 (1859), not *Gyandra chironioides* Griseb. *Erythraea venusta* Gray, Bot. Calif. i. 479 (1876).

LISIANTHUS CUSPIDATUS Bertoloni, Nov. Comm. Bonon. iv. 408, t. 38 (1840). *Leianthus cuspidatus* Griseb. in DC. Prod. ix. 82 (1845). This species is reduced to a synonym of *Leianthus nigrescens* (Cham. & Schlecht.) Griseb. by Hemsley, Biol. Cent.-Am. Bot. ii. 345 (1882) and of *Lisianthus nigrescens* Cham. & Schlecht. by Miss Perkins in Engl. Jahrb. xxxi. 493 (1902). An examination of Bertoloni's excellent plate of his *Lisianthus cuspidatus* leads to the belief that it represents a species markedly distinct from *L. nigrescens*. Conspicuous differences are to be found in the following features. In *L. cuspidatus* the leaves are narrowed to a subcuneate base, the corolla is much more deeply lobed, the lobes distinctly surpassing the pistil, while in *L. nigrescens* the leaves are rounded to a somewhat amplexicaul base and the corolla-lobes are only 4-11 mm. long being somewhat overtopped by the stigma. A specimen, collected in the Sapoti Barranca near the City of Guatemala by Sutton Hayes, July, 1860, and now in the Gray Herbarium, corresponds in all respects to the plate of Bertoloni, and fully justifies the separation of the species. The lobes of its corolla are 1.7 cm. in length. *Lisianthus nigrescens* Hook., in Curt. Bot. Mag. t. 4043, would appear to be *L. cuspidatus* Bert.

Lisianthus oreopolus, n. sp., suberectus 7 dm. vel ultra altus perennis; caule tereti (juventate solum plus minusve tetragono) levissime basi lignescenti; foliis sessilibus lanceolato-oblongis acuminate membranaceis 8-11 cm. longis 1.5-2.4 cm. latis basi amplexicaulibus biauriculatis subtus pallidioribus internodia multo superantibus; panicula laxa 3 dm. longa 2 dm. diametro; ramis ramulisque ascendenti-patentibus saepius alternis; pedicellis propriis (supra bracteolas) brevibus 1-2 mm. longis saepe curvatis; calyce graciliter ovoideo acutiuscule angulato 1 cm. longo fere a basi 5-lobo, lobis tenuibus attenuatis corollae appressis; corolla infundibuliformi 4 cm. longo glaberrima flava, tubo proprio gracili, faucibus longiusculis gradatim ampliatis, lobis 1.4-1.6 cm. longis lanceolatis acutissimis late patentibus; et staminibus et stylo exsertis; stigmatibus peltato margine revolutis. — MEXICO: Temperate region, mountain of Chiapas, flowering in June, *Ghiesbreght*, no. 702bis (type, in Gray Herb.). A species in habit similar to *L. nigrescens* Cham. & Schlecht., but differing in its yellow corolla with considerably longer and much more widely spreading lobes.

Lisianthus viscidiflorus, n. sp., erectus 1-1.2 m. altus floribus exceptis glaberrimus; caule subtereti levissimo angulis parvis prominulis 2 e costis mediis foliorum decurrentibus paululo ancipitali; internodiis inferioribus brevissimis 8-12 mm. longis, intermediis 2-6 cm. longis, superioribus ad 19 cm. longis; foliis lanceolato-oblongis

sessilibus amplexicaulibus 7-12 cm. longis 1-2.2 cm. latis acutis crassiusculis basi biauriculatis; panicula laxissima 3 dm. longa 2-3 dm. diametro, ramis patenti-ascendentibus infra nudis apice saepissime trichotomis 3-5-floris, ramulis lateralibus saepius 2-3.5 cm. longis 1-floris apicem versus saepissime arcuatis bibracteolatis; floribus viscosis; calyce herbaceo breviter subcylindrico basi turbinato, lobis juventate acutis mox apice erosis maturitate obtusissimis viscidis; corolla 3-3.5 cm. longa, tubo rectiusculo verisimiliter atrorubenti, limbo ca. 1 cm. diametro viscidissimo, dentibus deltoideis 3 mm. longis viridescentibus; staminibus inclusis; stigmatibus modice exserto peltato. — GUATEMALA: Coban, Dept. Alta Verapaz, alt. 1350 m., August, 1907, *H. von Tuerckheim*, no. II. 1308 (type, in Gray Herb.). Distributed as *Leianthus brevidentatus* Hemsl., a species described as having dense inflorescence, short pedicels, shorter corolla with lobes scarcely 2 mm. long, very acute calyx-lobes appressed to the corolla, etc., differences which would certainly appear to be of specific value. It is, furthermore, scarcely likely that the viscosity which is such a conspicuous feature of the present species could have been present in *L. brevidentatus* in like degree and have escaped mention.

Schultesia Hayesii, n. sp., annua erecta gracilis 3-4 dm. alta glaberrima supra ramosa; radice fibrosa; caule subtereti leviter 6-angulari foliato; foliis linearibus, inferioribus brevibus, superioribus 4-5 cm. longis 2-3 mm. latis angustissime attenuatis basi paulo angustatis sessilibus 3-nerviis subtus pallidioribus; ramis patenti-ascendentibus simplicibus saepissime alternis apice 2-bracteolatis et 1-floris; bracteolis anguste linearibus 3 cm. longis; floribus supra bracteolas sessilibus 4-meris; calyce anguste ovoideo 3-3.6 cm. longo, tubo castaneo levisimo evenio; alis semilanceolatis 3 mm. latis viridibus venosis sursum in dentes calycis subsetaceos gradatim attenuatis; corolla 4 cm. longa verisimiliter purpurea, lobis late ovatis breviter acuminatis 1 cm. longis; ovario 4 angulari 1.4 cm. longo 4 mm. lato. — PANAMA: Rio Grande Station, Panama railway, 13 December, 1859, *Sutton Hayes*, no. 160 (type, in Gray Herb.). This species is closely related to *S. heterophylla* Miq. but differs in several points. The stems are perceptibly 6-angled; the leaves are decidedly longer and relatively narrower than in *S. heterophylla* and the middle ones equal or often exceed the internodes, while in *S. heterophylla* they are much exceeded by the internodes. Finally the lobes of the corolla are only 1 cm. long, i. e. one third the length of the tube, those of *S. heterophylla* on the other hand being 1.6 cm. long, i. e. more than half the length of the tube.

Schultesia Peckiana, n. sp., decumbens, verisimiliter annua, habitu *S. lisianthoidi* similis 6-7 dm. alta laxa ramosa glaberrima; caule

tereti laevissimò; foliis lanceolati-ovatis tenuibus sessilibus acutissimis basi rotundatis; cymis laxè etiam atque etiam dichotomis; floribus in dichotomis solitariis 1.5 cm. longis erectis; pedicellis 8-30 mm. longis rectis nudis; calycis lobis 4 anguste lanceolatis acutissimis in media parte herbaceis margine scariosis vix carinatis ex alatis; corolla rubescenti vel purpurascenti fere ad mediam partem 4-secta; lobis ovatis acutis; filamentis gracilibus, basi exappendiculatis; antheris mucronatis. — BRITISH HONDURAS: about plantations and in the openings of the forests, near Manatee Lagoon, 27 January, 1906, *Prof. Morton E. Peck*, no. 318 (type, in Gray Herb.). A species considerably resembling *S. lisianthoides* (Griseb.) Benth. & Hook. f., but readily distinguished by its pedicelled flowers.

Evolvulus sericeus Sw., var. *glaberrimus*, n. var., ubique glaberrimus gracillimus, caulibus a basi patenti-ramosis suberectis 2.5-3 dm. altis; calyce etiam glaberrimo, aliter formae typicae simillimus. — BRITISH HONDURAS: low pine ridge near Manatee Lagoon, 28 March, 1906, *Prof. Morton E. Peck*, no. 372 (type, in Gray Herb.). A form remarkable for the complete absence of the silky pubescence, which is to some extent present in all other specimens examined, even those of the form *glabratus* Chod. & Hassl., which has decidedly silky-villous calyces.

Schwenkia oxycarpa, n. sp., perennis erecta suffrutescens seoparia 5-6 dm. alta; radice fibrosa; caulibus teretibus cortice fusco-griseo obtectis; ramis gracillimis ascendentibus vel erectis viridibus teretibus; foliis linearibus acutis sessilibus crassiusculis subglabris 5-7 mm. longis vix 1 mm. latis saepissime curvatis vel tortis 1-nerviis; inflorescentia ca. 1 dm. longa gracillima spiciformi; floribus fasciculatis sessilibus parvis; calyce turbinato ca. 1.3 mm. longo obscure strigilloso, dentibus lanceolatis acutis tubum subaequantibus; corolla 4 mm. longa atrocyanea rectiuscula, limbi dentibus 5 clavellatis quam sinuum lobi obovati crassiusculi subbipartiti vix longioribus; staminibus fertilibus 4 didynamis tubo corollae inclusis; capsula lanceolato-ovoidea acuta 2 mm. longa firmiuscula minute papillosa. — BRITISH HONDURAS: open damp ground, near Sibune River, 4 May, 1906, *Prof. Morton E. Peck*, no. 417a (type, in Gray Herb.). This noteworthy species, through some accident associated with no. 417 (an *Angelonia*), is clearly of § *Brachyhelus* and most nearly approaches the east Brazilian *S. fasciculata* Benth. It differs, however, in its essentially glabrous stem and rachises, its never fascicled leaves neither perceptibly cuneate at the base nor revolute on the margin, and finally in its lance-ovoid capsule.

Angelonia ciliaris, n. sp., caulibus gracilibus inaequaliter 4-angulatis in angulis conspicue ciliatis; foliis sessilibus oblongo-lanceolatis

acutis basi vix angustatis rotundatis 2-2.5 cm. longis ca. 5 mm. latis serratis supra laxe villosis margine ciliatis subtus in costa media solum longiuscule ciliatis aliter glabris; foliis floralibus late ovatis acutis subcordatis conspicue longeque ciliatis, inferioribus ca. 1 cm. longis pedicellum subaequantibus, superioribus ca. 3 mm. longis pedicello triplo brevioribus; ramis inflorescentiae ca. 1. dm. longis racemiformibus, pedicellis oppositis ascendenti-patentibus filiformibus ca. 1 cm. longis apice nutantibus; calycis segmentis lanceolatis acuminatis 3.5 mm. longis; corolla ca. 1 cm. diametro, sacco lato, appendice interiori ca. 0.7 mm. longa; capsula depresso globosa 5 mm. diametro. — BRITISH HONDURAS: on open damp ground, near Sibune River, 4 May, 1906, *Prof. Morton E. Peck*, no. 417 (type, in Gray Herb.). This species differs from *A. angustifolia* Benth. in its conspicuously ciliated stem and leaves, broader-based bracts, and smaller flowers; from *A. salicariaefolia* H. & B. it may be readily distinguished by its smaller flowers and much more sparing pubescence of much longer non-glandular hairs.

Isidorea pungens (Lam.), n. comb. *Ernodea pungens* Lam. Ill. i. 276 (1791). *E. pedunculata* Poir. Encyc. Suppl. ii. 581 (1811). *Isidorea amoena* A. Rich. Mém. sur les Rubiacées, 204, t. 15, f. 1 (1829), and Mém. Soc. Hist. Nat. Par. v. 284, t. 25 (1834).

Bikkia campanulata (Brong.), n. comb. *Grisia campanulata* Brong. Bull. Soc. Bot. Fr. xii. 406 (1865).

Bikkia Pancheri (Brong.), n. comb. *Bikkiopsis Pancheri* Brong. l. c. 405.

Bikkia retusiflora (Brong.), n. comb. *Grisia retusiflora* Brong. l. c. 407.

Houstonia mucronata (Benth.), n. comb. *Hedyotis mucronata* Benth. Bot. Sulph. 19 (1844). *Houstonia fruticosa* Rose, Contrib. U. S. Nat. Herb. i. 132 (1890), 239 (1893); Greenman, Proc. Am. Acad. xxxii. 292 (1897).

Houstonia umbratilis, n. sp., herbacea repens multicaulis ramosa obscure strigillosa; caulibus gracillimis interplexis subquadrangularibus foliosis, nodis radicanibus, internodiis 2-9 mm. longis; foliis parvis ovatis membranaceis acutiusculis brevissime petiolatis utrinque strigillosis subtus paululo pallidioribus uninerviis obscure reticulato-venosis 2.5-4 mm. longis 1.8-3 mm. latis, stipulis brevissimis; pedunculis filiformibus 1.5 cm. longis terminalibus 1-floris; calyce basi turbinato, tubo lobos ovato-lanceolatos acutiusculos anthesi aequante; corolla infundibuliformi in siccitate nigrescenti, tubo 5 mm. longo, lobis ovatis patentibus; staminibus 4 (eis speciminis observati exsertis, antheris lineari-oblongis filamenta aequantibus); fructu seminibusque ignotis.

—MEXICO: shaded cliffs of mountains, near Monterey, Nuevo Leon, 25 April, 1906, *C. G. Pringle*, no. 13,877 (type, in Gray Herb.). An attractive little matted plant with the habit of *H. serpyllifolia* Michx. and *H. serpyllacea* (Schlecht.) C. L. Sm. but differing from the former in its more shortly petioled, more acute leaves, and much smaller flowers, and from the latter in its membranaceous strigillose but unciliated leaves, more filiform stems, etc. The absence of fruit and seeds naturally throws a slight doubt upon the generic position, but the general habit, as well as such technical traits as are manifest, are those of *Houstonia*.

Neurocalyx calycinus (R. Br.), n. comb. *Argostemma calycinum* R. Br. in Bennett, Pl. Jav. Rar. 97 (1838). *Neurocalyx Wightii* Arn. Ann. Nat. Hist. iii. 22 (1839). *N. Hookeriana* Wight, l. c. i. t. 52 (1840).

Rondeletia leptodictya, n. sp., fruticosa 2 m. alta; ramis gracilibus rubro-brunneis flexuosis teretibus mox glabratibus; foliis oppositis obovato-oblongis acuminatis basi modice angustatis tenuibus supra viridibus tenuiter (sub lente) reticulatis glabris vel subglabris subtus juventate griseo-tomentosis 6–11 cm. longis 2.5–5 cm. latis; petiolis gracilibus 5–12 mm. longis pubescentibus; stipulis ovato-lanceolatis acutis brunneis 4 mm. longis erectis; pedunculis terminalibus 4–5.5 cm. longis gracilibus arachnoideis; floribus sessilibus dense capitatis; calycis tubo albo-lanato subgloboso 1.8 mm. diametro, lobis limbi 4 vix inaequalibus oblanceolatis viridibus vix 2 mm. longis; corolla sanguinea, tubo gracili sursum vix ampliato 1.4 cm. longo griseo-arachnoideo, lobis limbi 4 patentibus 2–3 mm. longis, ore nudo; stylo exserto. —MEXICO: banks of the Rio Petatlan near the boundary between Michoacan and Guerrero, alt. 500 m., 24 November, 1898, *E. Langlassé*, no. 666 (type, in Gray Herb.). Near *R. elongata* Bartl., but with calyx-lobes much shorter (scarcely a fifth the length of the corolla-tube), the limb of the corolla smaller, and the stipules much shorter than the petioles.

Rondeletia rufescens, n. sp., fruticosa; ramis teretibus tarde glabratibus cortice griseo tectis, ramulis et pedunculis et petiolis dense rufo-tomentosis; foliis lanceolato-oblongis 9–15 cm. longis 3.2–5 cm. latis apice basique acuminatis tenuibus supra obscure reticulatis et molliter puberulis subtus albedo-tomentosis, nerviis lateralibus ca. 10-jugis; inflorescentiis terminalibus thyrsoides flexuosis ca. 1.5 dm. longis rufo-tomentosis; cymulis superioribus subsessilibus inferioribus 2–12 mm. longe pedicellatis bracteis lineari-subulatis ca. 3 mm. longis suffultis multifloris; floribus brevissime pedicellatis aut sessilibus; calycis tubo subgloboso minute hirsuto, lobis 4 linearibus inaequalibus

intus glabris; corollae tubo gracillimo in fauces distincte ampliatio appresse griseo-puberulo vel arachnoideo 1 cm. longo; limbi lobis 4 suborbicularibus 1 mm. longis extus rufo-hispidulis intus et ore nudis; stylo paulo exserto, apice bifido nigro. — *Rondeletia* J. D. Sm. Enum. Pl. Guat. i. 16 (1889). *R. villosa* J. D. Sm. l. c. ii. 94 (1891), not Hemsl. — GUATEMALA: Coban, Depart. Alta Verapaz, alt. 1475 m., March, 1881, *H. von Tuerckheim*, no. 582 of Mr. J. Donnell Smith's distribution (type, in Gray Herb.). This plant is clearly distinct from *R. villosa* Hemsl., which has considerably broader (ovate) stipules and a very different closely matted white pubescence on the lower surface of the leaves, a more slender and denser inflorescence, etc.

Var. *ovata*, n. var., minus rufescens; foliis ovatis brevioribus 7-9 cm. longis basi rotundatis, aliter formae typicae similis. — *R. villosa*, forma *strigosissima* J. D. Sm. Enum. Pl. Guat. vii. 15 (1905), nomen. — GUATEMALA: Tactic, Depart. Alta Verapaz, alt. 550 m., March, 1903, *H. von Tuerckheim*, no. 8401 of Mr. J. Donnell Smith's distribution.

Rondeletia secundiflora, n. sp., arborescens; ramulis gracilibus teretibus dense griseo-strigillosis; foliis ovato-lanceolatis apice basique acuminatis tenuissimis 7-9 cm. longis 2-3.5 cm. latis utrinque appresse pilosiusculis subtus paulo pallidioribus, nerviis ca. 8-jugis; petiolo gracili 4-6 mm. longo griseo-piloso; stipulis a basi deltoidea subulatis 2 mm. longis; inflorescentiis 6-8 cm. longis spiciformibus plus minusve recurvis valde secundis, rhachi hirsutulo, cymulis parvis subsessilibus paucifloris numerosis; floribus deflexis; calycis tubo subgloboso dense patentimque sordido-hirsuto, lobis 4 modice inaequalibus minus dense indutis 1.4-2 mm. longis erectis spatulato-linearibus vel anguste lanceolatis; corolla 9 mm. longa extus strigillosa, tubo gracili cylindrica, limbo 4-loba, lobis suborbicularibus patulis 1.3 mm. diametro, ore nudo. — GUATEMALA: in woods, along the road from Patin to Esquintla, 21 July, 1860, *Dr. Sutton Hayes* (type, in Gray Herb.). This species is obviously related to *R. capitellata* Hemsl. but may be readily distinguished by the shaggy-hirsute tube and lance-linear or spatulate lobes of the calyx.

Rondeletia septicidalis, n. sp., fruticosa; ramis teretibus plus minusve flexuosis griseo-brunneis; foliis oppositis ovatis vel lanceolato-ovatis apice basique acuminatis firmiusculis 11-16 cm. longis 2-7 cm. latis utrinque viridibus subtus pallidioribus supra glaberrimis subtus basin versus obscure pilosulis, nerviis lateralibus ca. 8-jugis, petiolo 1-2.3 cm. longo glabro vel glabriusculo; stipulis anguste lanceolatis glabris 5 mm. longis acutis; inflorescentiis in axillis superioribus spiciformibus 1-1.5 dm. longis, pedunculo 1.5-3.5 cm. longo gracili tereti, rhachi simillimo obscure arachnoideo;

cymulis vulgatum 2-3-floris breviter pedicellatis bracteolis linearibus suffultis; calyce anguste campanulato basi turbinato, tubo griseo arachnoideo, lobis 4 lanceolato-linearibus deflexis modice inaequalibus tubum subaequantibus glabriusculis; corolla coccinea, tubo gracili subeylindrico sursum paulo ampliato basin versus glabriusculo supra cum limbo patente plus minusve arachnoideo ca. 17 cm. longo, lobis 4 orbicularibus ca. 3 mm. diametro tenuiter margine crispulis; ore nudo; staminibus 4 in ore affixis paulo exsertis, antheris lineari-oblongis; capsula subglobosa ca. 4 mm. diametro septicidali, valvis bifidis. — MEXICO: Chicharras, Chiapas, alt. 920-1840 m., *E. W. Nelson*, no. 3755 (type material in U. S. Nat. Mus. and Gray Herb.). This plant possesses so precisely the habit and most of the technical features of a *Rondeletia* that it seems best to refer it to this genus, though it will form an exception among the known species in the fact that its fruit is septicidal.

Hymenodictyon floribundum (Hochst. & Steud.), n. comb. *Kurria floribunda* Hochst. & Steud. Flora, xxiv. pt. 1, Intell. 28 (1841), name only; *ibid.* xxv. 234 (1842), with description. *Hymenodictyon Kurria* Hochst. Flora, xxvi. 71 (1843).

Bouvardia gracilipes, n. sp., fruticosa; ramis gracilibus teretibus cortice griseo tectis glabris, ramulis valde compressis, internodiis longiusculis glabris, nodis stipulisque puberulis; foliis oppositis breviter petiolatis tenuibus ovatis acuminatis basi rotundatis 5-7 cm. longis 2-3.5 cm. latis supra laete viridibus glabris subtus pallidioribus in costa venisque obscure puberulis; petiolo 2 mm. longo sordide tomentello; ocreis pallidis ca. 1 mm. longis marginem versus tomentellis cum appendicibus filiformibus breviter pubescentibus ca. 2 mm. longis munitis; inflorescentiis terminalibus laxis 8-12-floris glabris; pedunculis 2-4 cm. longis trichotomis, bracteis linearibus 1-3 mm. longis, ramulis lateralibus 3-4 cm. longis vicissim trichotomis; pedicellis filiformibus 1.5-2 cm. longis apice denique uncinatis; calycis dentibus 4 linearibus 1 mm. longis erectis in fructu inflexis persistentibus; corolla non visa; fructu 6 mm. lato 4.5 mm. alto pallide viridi sub lente albido-lineato quasi strigilloso. — MEXICO: Tepic, 5 January to 6 February, 1892, *Dr. E. Palmer*, no. 1971 (type, in Gray Herb.). Although this species is described from fruiting material and without knowledge of the corolla, it is believed that the unusually loose inflorescence with filiform at length hooked pedicels yields characters sufficiently distinctive for ready recognition.

BOUVARDIA LONGIFLORA (Cav.) HBK., var. *induta*, n. var., foliis ovato-rhomboides acutis supra scabriusculo-puberulis subtus tomentosis; corolla extus tomentella. — MEXICO: "Chiapas, etc." *Dr.*

Ghiesbreght, the specimen associated in the Gray Herbarium with Ghiesbreght's nos. 108 and 692 which, however, represent the more typical form of the species, being nearly glabrous. Forms to some extent intermediate in their pubescence and somewhat peculiar in their thinnish mostly obtusish leaves are shown by Langlassé's no. 1049 from near the boundary of Michoacan and Guerrero, as well as by Purpus's no. 1249 from Tehuacan, Puebla.

BOUVARDIA TERNIFOLIA (Cav.) Schlecht., var. *angustifolia* (HBK.), n. comb. *B. angustifolia* HBK. Nov. Gen. et Spec. iii. 384 (1818). *B. triphylla*, var. *angustifolia* Gray, Syn. Fl. i. pt. 2, 24 (1884). Although *B. angustifolia* HBK. has been treated as an independent species in various works of recent date, an increasingly complete series of intergrading specimens leaves no doubt that Dr. Gray was right in regarding this plant as merely a variety. Priority of the specific name of Cavanilles requires the new combination.

Lygistum ignitum (Vell.) Ktze., var. *micans* (K. Schum.), n. comb. *Manettia ignita*, var. *micans* K. Schum. in Mart. Fl. Bras. vi. pt. 6, 171 (1889).

Lygistum Rojasianum (Chod. & Hass.), n. comb. *Manettia Rojasiana* Chod. & Hass. Bull. Herb. Boiss. ser. 2, iv. 91 (1904).

Lygistum Smithii (Sprague), n. comb. *Manettia Smithii* Sprague, Bull. Herb. Boiss. ser. 2, v. 267 (1905).

Gonzalagunia bracteosa (J. D. Sm.), n. comb. *Gonzalea bracteosa* J. D. Sm. Bot. Gaz. xxxiii. 252 (1902).

Gonzalagunia leptantha (A. Rich.), n. comb. *Gonzalea leptantha* A. Rich. Fl. Cub. Fanerog. ii. 16 (1853).

Gonzalagunia ovatifolia (J. D. Sm.), n. comb. *Gonzalea ovatifolia* J. D. Sm. Bot. Gaz. xxvii. 336 (1899).

Gonzalagunia Petesia (Griseb.), n. comb. *Gonzalea Petesia* Griseb. Mem. Amer. Acad. new ser. viii. 504 (1863). *Gonzalagunia hirsuta* γ *Petesia* Ktze. Rev. Gen. i. 284 (1891).

Gonzalagunia thyrsoides (J. D. Sm.), n. comb. *Gonzalea thyrsoides* J. D. Sm. Bot. Gaz. xiii. 188 (1888).

Tarenna mollis (Wall.), n. comb. *Rondeletia? mollis* Wall. Cat. no. 8454 (1847). *Webera mollis* Hook. f., Fl. Brit. Ind. iii. 104 (1882).

Tarenna mollissima (Hook. & Arn.), n. comb. *Cupia mollissima* Hook. & Arn. Bot. Beech. 192 (1833). *Stylocorine mollissima* Walp. Rep. ii. 517 (1843). *Webera mollissima* Benth. ex Hance, Jour. Linn. Soc. xiii. 105 (1873).

Tarenna odorata (Roxb.), n. comb. *Webera odorata* Roxb. Hort. Bengal. 15 (1814), and Fl. Ind. i. 699 (1832). *Cupia odorata* DC.

Prod. iv. 394 (1830). *Webera macrophylla* Roxb. Hort. Bengal. 85 (1814), and Fl. Ind. i. 697 (1832). *Cupia macrophylla* DC. l. c.

Casasia nigrescens Wright in herb. *Randia nigrescens* Griseb. Cat. Pl. Cub. 123 (1866), where the combination *Casasia nigrescens* Wright is implied though not definitely made. *Randia nigrescens* Wright & Sauvalle, Fl. Cub. 60 (1873). *Randia nigricans* K. Schum. in Engl. & Prantl, Nat. Pflanzenf. iv. Abt. 4, 77 (1891), by obvious clerical error.

Hamelia hypomalaca, n. sp., fruticosa ramosa; ramis curvatis teretibus cortice brunneo-griseo lenticellifero tectis; ramulis dense tomentellis; foliis ternis ovalibus obtuse acuminatis basi brevissime acuminatis saepe inaequilateralibus 6.5–9 cm. longis 4–5.5 cm. latis membranaceis supra laete viridibus obscure puberulis subtus multo pallidioribus molliter griseo-tomentellis vel denique glabrescentibus; petiolo gracili ca. 2 cm. longo tomentello; cymis terminalibus ca. 9-floris modice laxis tomentellis, ramis recurvis, pedicellis 2–9 mm. longis; floribus pro genere majusculis; calyce tomentello, dentibus brevibus subulatis; corolla flava 4 cm. longa, tubo proprio brevi, faucibus longis ampliatis, limbi lobis 5 late ovatis acuminati-mucronatis; fructu immaturo ca. 8 mm. longo. — MEXICO: State of Durango, 15 August, 1897, Dr. J. N. Rose, no. 2304 (type, in U. S. Nat. Mus. and Gray Herb.). Closely related to *H. ventricosa* Sw., but readily distinguished by its tomentulose leaves, loose inflorescence, and somewhat smaller flowers.

Hoffmannia Conzattii, n. sp., fruticosa glabra; ramis subteretibus obsolete solum et obtuse subtetragonis apicem versus foliatis deorsum longe floriferis; foliis obovato-vel oblanceolato-oblongis breviter caudato-acuminatis basi longe attenuatis tenuiter membranaceis utrinque glaberrimis supra in siccitate nigrescentibus subtus pallidioribus viridibus 11–16 cm. longis 3.5–6 cm. latis; costa media supra impressa, nerviis lateralibus ca. 8-jugis oppositis vel alternis; petiolo 1.8–2.5 cm. longo glabro; stipulis ovatis caducis; cymis subsessilibus oppositis lateralibus numerosis subapproximatis ca. 6-floris; pedicellis calycem subaequantibus; tubo calycis subgloboso 2.5 mm. longo, limbo breviter patentimque 4-dentato; corolla ca. 6 mm. longa ad mediam partem 4-fida, lobis anguste oblongis saepissime patentibus; antheris anguste oblongis exsertis; fructu ignoto. — MEXICO: Colonia Melchor Ocampo, Canton de Córdoba, Vera Cruz, alt. 1200 m., Prof. C. Conzatti, 19 June, 1896, no. 168 (type, in Gray Herb.). This species in foliage closely resembles *H. calycosa* J. D. Sm., but is readily distinguished by its exceedingly short calyx-lobes. From *H. Ghiesbreghtii* (Lem.) Hemsl. it differs in its subterete wingless branches. *H. longepetiolata* Polak.

appears by its description to have longer petioles and considerably larger flowers.

Hoffmannia cuneatissima, n. sp., fruticosa; ramis teretibus griseis etiam in lignescentia cum pilis brevibus crispis rufescentibus denique sparsis inconspicuisque tectis; foliis oppositis vel ternis deflexis tenuibus acuminatis oblanceolatis 1-1.6 dm. longis 3-4.5 cm. latis basi longissime cuneatis supra glabriusculis subtus paulo pallidioribus praesertim in nerviis venisque crispe puberulis; cymis axillaribus pedunculatis 4-8-floris; pedunculis ad ca. 1 cm. longis ascendentibus gracilibus rufó-pubescentibus; pedicellis 1-2 mm. longis; calyce turbinate-subtereti 2 mm. longo crispe pubescenti, limbi dentibus 4 lanceolati-deltoides primo suberectis denique patentibus ca. 1.2 mm. longis cum denticulis 4 minimis glandulosis alternantibus; corolla flavida extus puberula ca. 1 cm. longa ad mediam partem 4-fida; lobis oblongis obtusiusculis in media parte crassiusculis dorso carinatis carina crispe puberula; bacca nigrescenti 5 mm. diametro; seminibus numerosis brunneis compressiusculis foveolatis. — MEXICO: mountain cañon near Cuernavaca, alt. 200 m., 29 May, 1898, *C. G. Pringle*, no. 7662 (type, in Gray Herb.); and previously in the same locality, 20 Nov., 1895, *C. G. Pringle*, no. 7075 (Gray Herb.) and 31 July, 1896, *C. G. Pringle*, no. 7248 (Gray Herb.). This species belongs clearly to the same group as *H. affinis* Hemsl. and *H. lenticellata* Hemsl., but with its thin, thoroughly membranaceous leaves and rufous-pubescent branches cannot well be placed in either of these species.

Hoffmannia Rosei, n. sp., fruticosa 3 m. alta; ramis flexuosis dense pulverulo-puberulis et obscure strigillosis, internodiis brevibus 5-12 mm. solum longis; foliis oppositis oblanceolatis membranaceis acuminatis basi longe attenuatis 6-12 cm. longis 3.4-5 cm. latis utrinque obscure strigilloso-puberulis vel supra glabriusculis subtus in costa et nerviis lateralibus dense minuteque pulverulo-puberulis; cymis axillaribus oppositis graciliter pedunculatis 5-9-floris subcircularibus; pedunculis 1-1.3 cm. longis pulverulis rubescentibus; pedicellis similibus ca. 2 mm. longis; calyce ovoideo strigilloso, dentibus 4 brevibus anguste deltoideis cum glandulis 4 parvis alternantibus; corolla alba 7 mm. longa pulverula ad partem paulo infra mediam 4-fida, lobis limbi oblongis acutis tenuibus nec carinatis nec pubescentibus. — MEXICO: along a brook near Pedro Paulo, Tepic, 3 August, 1897, *Dr. J. N. Rose*, no. 1968 (type, in U. S. Nat. Mus. and Gray Herb.). Very near *H. cuneatissima*, described above, but with opposite leaves, mere puberulence instead of pubescence, and unkeeled corolla-lobes.

Antirrhoea chinensis (Champ.), n. comb. *Guettardella chinensis* Champ. in Hook. Kew. Journ. Bot. iv. 197 (1852).

Timonius polygamus (Forst.), n. comb. *Erithalis polygama* Forst. Prod. 17 (1786). *E. obovata* Forst. l. c. 98, mere mention in index. *Timonius Forsteri* DC. Prod. iv. 461 (1830); Drake del Castillo, Ill. Fl. Ins. Pacif. 193 (1890), which see for further synonymy.

Stylocorine alpestris (Wight), n. comb. *Pavetta* ? *lucens* R. Br. in Wall. Cat. no. 6168 (1828), name only. *Coffea alpestris* Wight, l. c. t. 1040 (1848-1856). *Webera lucens* Hook. f. Fl. Brit. Ind. iii. 106 (1882), as to var. 1. *Stylocorine breviflora* Schlecht. ex Hook. f., l. c. — Foliis oblanceolatis. Var. *grumelioides* (Wight), n. comb. *Coffea grumelioides* Wight, l. c. t. 1041 (1848-1856). *Webera lucens* Hook. f., l. c. as to var. 2. — Foliis obovatis.

Stylocorine longifolia (G. Don), n. comb. *Ixora macrophylla* R. Br. in Wall. Cat. no. 6165 (1828), name only, not Bartl. *Ixora longifolia* G. Don Syst. iii. 573 (1834). *Pavetta longifolia* Miq. Fl. Ind. Bot. iii. 275 (1856-1859). *Webera longifolia* Hook. f. Fl. Brit. Ind. iii. 105 (1882).

Rudgea crassiloba (Benth.), n. comb. *Coffea crassiloba* Benth. in Hook. Jour. Bot. iii. 233 (1841). *Rudgea Schomburgkiana* Benth. Linnaea, xxiii. 459 (1850).

CEPHAELIS ELATA Sw. Prod. 45 (1788). Here apparently belongs *Cephaelis punicea* Vahl, Elog. i. 19 (1796) and consequently *Uragoga punicea* K. Schum. in Engl. & Prantl, Nat. Pflanzenf. iv. Abt. 4, 120 (1891), a name which, through apparent clerical error, has been cited by Durand & Jackson, Ind. Kew. Suppl. 1, 445 (1906), as "*Uragoga phoenicea* K. Schum.," a combination said by them to equal "*Palicourea punicea* R. & P." However, Ruiz & Pavon do not appear to have created any such binomial, though DeCandolle's *Palicourea punicea* (Prod. iv. 526, 1830) was based upon *Psychotria punicea* R. & P. Fl. Per. ii. 62, t. 212 fig. a (1799), a species obviously not of *Cephaelis*. Schumann's "*Uragoga phoenicea*," which seems never to have been published by its supposed author, appears to have given rise to *Cephaelis phoenicea* J. D. Sm. Pl. Guat. v. 39 (1899), which as to plants cited is clearly *C. elata* Sw.

Cephaelis sphaerocephala (Muell. Arg.), n. comb. *Psychotria sphaerocephala* Muell. Arg. Flora, lix. 550, 553 (1876).

Nertera Arnottianiana (Walp.), n. comb. *Leptostigma Arnottianum* Walp. Rep. ii. 463 (1843). *Hedyotis repens* Clos in Gay, Fl. Chil. iii. 208 (1847). *Coprosma calycina* Gray, Proc. Am. Acad. iv. 306 (1860).

Coprosma australis (A. Rich.), n. comb. *Ronabea* ? *australis* A. Rich. Voy. Astrolabe Bot. i. 265 (1832). *Coprosma grandifolia* Hook.

f. Fl. N. Z. i. 104 (1853). *Pelaphia grandifolia* Banks & Soland. ex Hook. f., l. c.

Coprosma quadrifida (Labill.), n. comb. *Canthium quadrifidum* Labill. Nov. Holl. Pl. i. 69, t. 94 (1804). *Marquisia Billardieri* A. Rich. Mém. sur les Rubiacées, 112 (1829), & Mém. Soc. Hist. Nat. Par. v. 192 (1829). *Coprosma Billardieri* Hook. f. in Hook. Lond. Jour. Bot. vi. 465 [bis] (1847). *Coprosma microphylla* A. Cunn. ex Hook. f., l. c.

Richardia muricata (Griseb.), n. comb. *Richardsonia muricata* Griseb. Cat. Pl. Cub. 143 (1866). *Spermacoce (Borreria) richardsonioides* Wright in Sauv. Fl. Cub. 73 (1873).

Crusea hispida (Mill.), n. comb. *Crucianella hispida* Mill. Diet. ed. 8, no. 4 (1768). *Spermacoce rubra* Jacq. Hort. Schönbr. iii. 3, t. 256 (1798). *Crusea rubra* Schlecht. & Cham. Linnaea, v. 165 (1830).

Borreria asperifolia (Mart. & Gal.), n. comb. *Diphragmus scaber* Presl, Bot. Bemerk. 81 (1844), not *Borreria scabra* (Schum. & Thonn.) K. Schum. *Spermacoce asperifolia* Mart. & Gal. Bull. Acad. Brux. xi. pt. 1, 132 (1844).

Borreria nesiotica n. sp., suffrutescens glaberrima 4 dm. vel ultra alta ramosa; ramis ascendentibus subteretibus parte superiori 4-angulatis basim versus foliosissimis saepe purpurascens; foliis oppositis anguste lanceolatis basi apiceque attenuatis laevissimis etiam ad marginem paulo revolutum 2-4.5 cm. longis 3-12 mm. latis modice venosis subtus paululo pallidioribus axillis saepe proliferis; verticillis plerisque 4 distantibus 9-12 mm. diametro hemisphaericis a bracteis 2 majoribus oppositis 1-2 cm. longis ovato-lanceolatis obtusiusculis basi ampliato setoso-dentatis et ca. 4 minoribus ovatis obtusis 5 mm. longis suffultis; calyce glabro breviter et subaequaliter 4-lobato cum dentibus intermediis brevissimis; corolla glabra; staminibus exsertis; stigmatibus brevissime bilobato; seminibus papillois nigris non transverse sulcatis. — *Spermacoce (Boneria)*, sp. Vasey & Rose, Proc. U. S. Nat. Mus. xiii. 148 (1890). *Spermacoce* sp. Brandegee, Zoe, v. 27 (1900). — SOCORRO ISLAND (of the Revillagigedo Group), A. W. Anthony, 1897 (type, in Gray Herb.); previously collected by C. H. Townsend, March, 1889; and later by F. E. Barkley, 27 May to 3 July, 1903, no. 208. In habit somewhat resembling *B. verticillata* (L.) G. F. W. Mey., but readily distinguished by its 4-lobed calyx. Also somewhat like forms of the highly variable *B. tenella* (HBK.) Cham. & Schlecht., but having much shorter calyx-lobes (about one third the length of the tube), glabrous foliage, etc.

Borreria rhadinophylla, n. sp., gracillima ramosa prostrata, caulis elongatis valde flexuosis obsolete quadrangularibus foliosis tenuiter

patenteque pubescentibus plus minusve rubescentibus fere filiformibus sed basim versus induratis et lignescentibus, nodis hirsutulis; foliis anguste linearibus subfiliformibus 1-nerviis glabris margine revolutis apice acutissimis 1-2 cm. longis; vaginis brevissimis paucis (saepius 2-) setis; verticillis remotis plerumque 2 subglobosis ca. 1 cm. diametro; calyce longe 2-lobato, lobis lanceolato-linearibus acutissimis herbaceis sursum fimbriato-ciliatis, dentibus intermediis multo brevioribus scariosis; corolla alba hypocraterimorpha 4-loba 2.5 mm. longa, lobis ovato-oblongis apicem versus hispidis, tubo intus basim versus pubescente; staminibus 4 in summa parte tubi affixis, leviter exsertis; fructu et seminibus non visis. — BRITISH HONDURAS, on dry sandy pine ridges, 23 October, 1905, *Prof. Morton E. Peck*, no. 180 (type, in Gray Herb.). From its 2-lobed calyx this species would seem to stand near the polymorphous *B. verticillata* (HBK.) Cham. & Schlecht. but with all due recognition of the extraordinary variability of that species, it does not seem possible that this delicate filiform plant should be included among its forms. Among the distinctions noted is the form of the stigma, which in *B. verticillata* is barely lobed, but in *B. Peckiana* distinctly bifid with short but actually filiform lobes.

BORRERIA VERTICILLATA (L.) G. F. W. Mey., var. *thymiformis*, n. var., pumila 6-8 cm. alta subglabra; caulibus multis gracilibus laxis flexuosis a caudice crassa nigrescente oriuntibus; foliis ovato-ellipticis 7-11 mm. longis 2-5 mm. latis; capitibus parvis ca. 8 mm. diametro terminalibus. — MEXICO: about 29 km. southwest of the city of Oaxaca, alt. 2300-2900 m., 10-20 September, 1894, *E. W. Nelson*, no. 1410 (type, in Gray Herb. and Herb. U. S. Nat. Mus.). This plant, although maintaining all the floral traits of the species, is so strikingly different from the usual forms as to be well worthy of varietal distinction. Were it not connected with the more typical forms by such intermediates as L. C. Smith's no. 40 from the Cuilapan Mountains, it could certainly pass as a distinct species.

Erigeron Deamii, n. sp., suffruticulus gracillimus pumilus 1 dm. altus irregulariter a basi ramosus, ramis teretibus strigosis foliosissimis ascendentibus saepius 1-capitatis; foliis linearibus (infimis anguste oblanceolatis) ca. 1 cm. longis ca. 1 mm. latis utrinque strigilloso-hispidulis 1-nerviis saepe in axillis proliferis; pedunculis filiformibus ca. 3 cm. longis rectis vel apicem versus plus minusve nutantibus 1-capitatis subappresse pubescentibus; capitibus hemisphaericis ca. 8 mm. diametro; involucri squamis argute linearibus attenuatis subaequalibus media parte viridibus hirsutulis margine pallidis scariosis ca. 4 mm. longis; flosculis disci numerosis, corollis 2.3 mm. longis apicem versus flavidulis, achaeniis compressis sparse hirsutulis 1.3 mm.

longis, pappi setis ca. 12 tenuibus albis 2.4 mm. longis; flosculis liguliferis ca. 40, ligulis angustis albis vel purpureo-tinctis tubo subaequilongis apice saepissime bidentatis, achaeniis et pappi setis eis flosculorum disci similibus. — GUATEMALA: growing on rocks in bottom of cañon, Fiscal, Guatemala, alt. 1130 m., 3 June, 1909, *Charles C. Deam*, no. 6159 (type, in Gray Herb.). This species is obviously of the affinity of *E. mucronatus* DC., *E. exilis* Gray, and *E. Karwinskianus* DC. From the first of these it differs in having narrower (linear rather than lanceolate) leaves, smaller heads, and relatively as well as absolutely shorter rays (exceeding the disk scarcely by one third). *E. exilis* Gray has the involucre bracts and peduncles very much more closely and finely puberulent, and *E. Karwinskianus* DC. is described as having the leaves glabrous on both surfaces.

Verbesina medullosa, n. sp., frutescens 1.2–1.8 m. alta; caulibus crassiusculis teretibus foliosis medullosis omnino exalatis juventate tomentellis serius subglabris; foliis alternis ovatis majusculis 1.2–1.5 dm. longis 4–6 cm. latis crenato-serratis penninerviis supra scabris puberulis viridibus subtus griseo-tomentellis apice attenuatis caudato-acuminatis basi in petiolum alatum biauriculatum sensim angustatis, alis petioli transverse valde rugosis margine integriuscula revoluta; capitulis numerosis parvis 9 mm. altis in corymbis compositis planiusculis bracteatis dispositis; involucri subturbinati squamis villosito-tomentellis pallide viridibus apicem versus purpurascentibus; flosculis disci ca. 20, corollis albidis 4 mm. longis tubo extus puberulo dentibus limbi suberectis brevibus deltoideis, flosculis liguliferis ca. 3 fertilibus, ligulis ovalibus parvis albis tubo vix longioribus; achaeniis valde immaturis obovatis valde compressis margine sursum ciliolatis apice biaristatis. — GUATEMALA: along railway, Fiscal, alt. 1130 m., 9 June, 1909, *Charles C. Deam*, no. 6250 (type, in Gray Herb.). This species differs in its wingless stem and branches from such forms of *V. turbacensis* HBK. as have unlobed leaves. From *V. sublobata* Benth., it may be distinguished by its more bluntly toothed (crenate-serrate) unlobed leaves which are more gradually narrowed to the winged petiole.

Trixis Deamii, n. sp., fruticosa 1.5 m. alta laxae ramosa; ramis exalatis teretibus gracilibus griseis glabris; ramulis striatulis viridibus tomentellis foliosis; foliis rhomboideo-obovatis acute acuminatis basi subabrupte angustatis subintegris tenuibus supra atroviridibus pilosiusculis planis subtus griseo-sericeis 3.5–7 cm. longis 1.5–3 cm. latis nullo modo decurrentibus; petiolo ca. 4 mm. longo gracili villosulo subtus carinato; capitulis prope apicem ramulorum aggregatis ca. 2 cm. longis 12-floris a foliis longioribus plus minusve excessis et obscuratis;

bracteae involucri exterioris ca. 4 elliptico-lanceolatis alternis acuminate ca. 12 mm. longis tenuibus foliis similibus; squamis involucri proprii 8 lanceolati-linearibus attenuatis ca. 14 mm. longis dorso glanduloso-puberulis medio herbaceis margine subscareosis demum stellato-patentibus divaricatis apice falcatis; corollis ca. 1 cm. longis laete flavis; acheniis 5 mm. longis columnaribus papilloso-setulosis; pappi setis albo-fulvescentibus ca. 9 mm. longis. — GUATEMALA: along river, alt. 230 m., Zacapa, 19 June, 1909, *Charles C. Deam*, no. 6359 (type, in Gray Herb.). This shrub differs from such related species as *T. megalophylla* Greenman, *T. silvatica* Robinson & Greenman, *T. Nelsonii* Greenman, and *T. rugulosa* Robinson & Greenman, in its much thinner, flatter, softer, and essentially entire leaves of rhombic-obovate form. From *T. frutescens* P. Browne and its relatives the present plant is readily distinguished by its larger outer involucre, the silky under surface of its leaves, etc.

Chaptalia semifloscularis (Walt.), n. comb. *Perdicium semiflosculare* Walt., Fl. Car. 204 (1788). *Chaptalia tomentosa* Vent. Desc. Jard. Cels, t. 61 (1800). *Tussilago integrifolia* Willd. Sp. Pl. iii. 1964 (1804). *Gerbera Walteri*, Sch. Bip. in Seem. Voy. Herald. 313 (1856). *Thyrsanthema semiflosculare* (Walt.) Ktze. Rev. Gen. i. 369 (1891).

III. AMERICAN FORMS OF LYCOPodium COMPLANATUM.

By C. A. WEATHERBY.

Lycopodium complanatum L. occurs in the western hemisphere in two distinct and geographically isolated areas. In the north, it ranges from Newfoundland to Alaska, and southward to northern Idaho and (in its variety *flabelliforme*) to the mountains of North Carolina. It is apparently entirely absent from the United States south of these points; but it reappears in south-central Mexico and extends thence through Central America to Bolivia and southern Brazil. It has also been reported from the West Indies. Specimens from these areas show, on examination, four more or less well-marked variant tendencies — two (one with a subsidiary variation) in the north, and in the south, two others, separable from each other and from both of the northern forms.

The northern forms have been clearly distinguished by Prof. Fernald.¹ The two southern (one chiefly Mexican, the other chiefly

¹ Rhodora, iii. 280 (1901).

South American) are connected by various intermediates, but, in their extreme development, are sufficiently diverse to warrant varietal distinction. Indeed, since Humboldt and Bonpland described their *Lycopodium thyoides* in 1810, it has been recognized by most botanists that some, at least, of the tropical material differed from typical *L. complanatum* of northern Europe and North America; and *L. thyoides* has been rather generally maintained as a variety, differently defined by different authors. Neither its relation to the northern forms, however, nor its exact identity in regard to the other tropical form seems to have worked out with entire clearness. Lloyd and Underwood, in their Review of the North American Species of *Lycopodium*,² called attention to the habitual difference between Mexican and Central American, and northern specimens; but, partly owing, no doubt, to their reluctance to describe varieties, carried their studies no further. Dr. Christ,³ in a brief but clear note, has pointed out the distinctions between the two southern forms; but he seems to be in error in referring the prevailing South American form to typical *L. complanatum*. The plant of northern Europe and America which, as Prof. Fernald has shown, should be regarded as the type of the Linnaean species, is low, and habitally as well as in the characters of its branchlets and their leaves, quite different from the taller South American plant. Dr. Christ seems also to have been in error in identifying the other tropical extreme, which has broad branchlets and long leaves with conspicuously spreading tips, with *L. thyoides* H. & B. The original description of this species in Willd. Sp. Pl. v. 18, emphasizes rather strongly the appressed leaves.⁴ In view of the facts that the type specimens were from Venezuela, and that the appressed-leaved form is apparently much the more common throughout South America, it seems best to follow the first diagnosis, and to restrict *L. thyoides* to that form.

In spite of their complete geographic separation, there is nothing to warrant the segregation of the tropical forms as separate species. The characters which distinguish them are of too little importance in themselves and too inconstant. They are rather to be considered as extreme developments of tendencies which are traceable also in occasional specimens of the northern plant, but are there not so strongly developed. The earliest varietal designation of the South American plant and that which, under the Vienna Rules, it should bear, is *L. complanatum*, β *tropicum* Spring, based on *L. thyoides* H. & B. The other, prevalently Mexican, extreme seems to be without an available name.

² Bull. Torr. Bot. Club, xxvii. 165 (1900).

³ Bull. Herb. Boiss., sér. 2, ii. 707 (1902). ⁴ "foliis semper adpressis."

The following synopsis will serve to define these American tendencies of *L. complanatum*, as understood by the writer. The specimens cited are all in the Gray Herbarium.

- * Branchlets ascending, or, if spreading, lax and irregular; ultimate branchlets often more or less elongated.
- ← Ultimate branchlets comparatively broad, 2-5 mm. wide, conspicuously flattened, usually ascending and only moderately elongated; their leaves 3-5 mm. long.

LYCOPODIUM COMPLANATUM L. Branches mostly not over 3 dm. long; peduncles bearing 1-2(-4) spikes; tips of the lateral leaves usually appressed or incurved. — Sp. Pl. 1104 (1753), excl. citation of Dill. Musc. t. 59 f. 3. — NORTH AMERICA: Newfoundland to Alaska, south to Maine and northern Idaho. Also in Eurasia.

Var. **validum**, nom. nov. More robust; branches usually 3-4.5 dm. long; peduncles bearing 4-6(-9) spikes; tips of the lateral leaves conspicuously spreading. — *L. complanatum* Fourn. Enum. Pl. Mex. i. 146, at least in part, not L.; Hemsl. Biol. Cent.-Am. Bot. iii. 701, at least in part, not L. *L. complanatum*, var. *thuyoides* Christ, Bull. Herb. Boiss. sér. 2, ii. 707 (1902), not *L. thuyoides* H. & B. — MEXICO: Chiapas; Bergwald zwischen San Cristobal Las Casas und Huitztan, *C. & E. Seler*, no. 2273; Chiapas "etc.," *Ghiesbreght*, no. 600; Oaxaca, Cerro San Felipe, alt. 2000 m., *Gonzalez & Conzatti*, no. 889; region d'Orizaba, *Bourgeau*, no. 3159, in part; Hidalgo, Trinidad, *C. G. Pringle*, no. 11,856 (a form with the ultimate branchlets lax, elongated, and somewhat attenuate at tip). No. 3196 in John Donnell Smith's Plants of Guatemala shows a form intermediate between this and the following variety.

- ← ← Ultimate branchlets narrow, not more than 2 mm. wide, less conspicuously flattened, somewhat convex above, sometimes much elongated (to 12 cm.) and loosely spreading; their leaves 2-3 mm. long, the tips usually closely appressed.

Var. **TROPICUM** Spring in Mart. Fl. Bras. i. pt. 2, 116 (1840). *L. thuyoides* H. & B. in Willd. Sp. Pl. v. 18 (1810); ?HBK. Nov. Gen. et Sp. i. 38 (1815); Presl, Rel. Haenk. 77 (1825); Raddi, Fil. Bras. 80 (1825), at least in part. *L. complanatum* β *adpressifolium* Spring, Monog. Lycopod. i. 102 (1842), excl. syn. *L. anceps* Wallr. *L. complanatum*, "var. *L. thuyoides* HBK." Baker, Handb. of the Fern Allies, 28 (1887). *L. complanatum*, var. *thuyoides* Hieron. Engl. Bot. Jahrb. xxxiv. 576 (1905). — COLOMBIA: Moritz; Santa Marta, *Purdie*. ECUADOR: in Andibus quitensibus, *Jameson*; Andibus, *Spruce*, no. 5412 (a doubtful plant which seems to have suffered some injury to its leaves). PERU:

Andes, *Jameson*. BOLIVIA : Yungas, *Bang*, no. 395. BRAZIL : *Riedel* ; *Claussen* ; Herb. U. S. So. Pac. Expl. Exp., no. 27 ; Prov. Minas Geraes, *Widgren*, no. 984½. Burchell's no. 2223, from Brazil, of which the specimen in the Gray Herb. shows only the tip of a stem, is perhaps referable to var. *validum*.

** Branchlets spreading or recurved, forming a regular flabelliform spray; ultimate branchlets usually short, 0.5 to 4 cm. long, broad as in *L. complanatum* but with shorter leaves.

Var. FLABELLIFORME Fernald. Peduncles usually bearing 4 spikes. — *Rhodora*, iii. 280 (1901). *L. complanatum* Amer. auth. in part. — NORTH AMERICA : Nova Scotia to the mountains of North Carolina, Kentucky, Iowa, and Minnesota.

Var WIBBEI Haberer. Peduncles 1-spiked. — *Rhodora*, vi. 102 (1904). NORTH AMERICA : northern Vermont and central New York.

IV. NEW AND LITTLE KNOWN MEXICAN PLANTS, CHIEFLY LABIATAE.

BY M. L. FERNALD.

Juncus albicans, n. sp., caespitosus ; caulibus 5–7 dm. altis tenuibus striatis albido-viridibus ; vaginis basilaribus laxis albicantibus demum fuscis, auriculis cartilagineis, laminis subteretibus anguste canaliculatis ; inflorescentiis decompositis 2–6 cm. longis, ramis suberectis, floribus subremotis vel aggregatis ; bractea infima frondosa inflorescentiam plerumque superante ; floribus 4–5 mm. longis albido-stramineis ; bracteolis tenuibus albicantibus ; sepalis petalisque subaequilongis patentibus lanceolatis apice subulatis anguste membranaceo-marginatis ; staminibus 6 sepalis circa dimidio brevioribus, antheris filamentisque aequantibus ; fructibus trigono-ellipsoideis truncatis breve mucronatis 3–4 mm. longis pallide stramineis nitidis ; seminibus 0.5 mm. longis oblique ellipsoideis brevissime albo-caudatis. — CHIHUAHUA : vicinity of Chihuahua, altitude about 1300 m., May 1–21, 1908, *Edward Palmer*, no. 161 (type, in Gray Herb.). [It should be noted that two plants have been distributed under no. 161, but, as the other belongs in the *Cruciferae*, little confusion is likely to result.] Nearly related to *J. dichotomus* Ell. of the southern and eastern United States. Differing in its very pale color, the softer texture of the prophylla, perianth, and capsule, and the distinctly white-caudate longer seeds.

Palmer's no. 253, collected May 28–31, 1906, at Tobar, Durango, is provisionally placed with *Juncus albicans*, though it may eventually

prove to be distinct. It has less cartilaginous auricles, smaller flowers, and more ascending sepals, but the material at hand is over-mature and has lost all its seeds.

Juncus Pringlei, n. sp., dense caespitosus; caulibus erectis gracilibus rigidis 1.5–2.5 dm. altis sulcatis; cataphyllis basilaribus mucroniferis stramineis, supremis laminigeris lamina 4–10 cm. longa; inflorescentia densa 3–7-flora a bractea infima vix superata; floribus 4.5–5 mm. longis; sepalis lanceolatis petala subaequantibus apice subulatis dorso crassis viridibus lateribus castaneis marginibus membranaceis pallidis; staminibus 6, antheris linearibus flavidis quam filamentum longioribus; fructibus trigono-ellipsoideis mucronatis nitidis pallide castaneis vel olivaceis 5–6 mm. longis; seminibus 0.4 mm. longis ellipsoideis mucronatis. — OAXACA: Cuesta de San Juan del Estado, altitude 2125 meters, August 31, 1894, *C. G. Pringle*, no. 5818 (type, in Gray Herb.). An interesting addition to the little group of species, *J. Drummondii* E. Meyer, *J. Parryi* Engelm., and *J. Hallii* Engelm., all of which are confined to the cordillera of western North America. *J. Pringlei* closely simulates *J. Hallii* of Colorado and Utah, but differs in its blunt-pointed, not retuse, capsule; and, unlike any of its three allies, it has mucronate instead of caudate-appendaged seeds.

Scutellaria spinescens, n. sp., fruticosa 1–2 dm. alta; caule crasso tortuoso cortice cinereo, ramis implicatis rigidis spinescentibus cinereo-hirtellis, pilis minutis; foliis ellipticis vel oblongis integris breve petiolatis rugosis cinereo-hispidulis, majoribus 1 cm. longis; floribus axillaribus; pedicellis 5 mm. longis; calyce 2.5–3 mm. longo glanduloso-hispido; corolla curvata pilosa 2 cm. longa flava vel rubella, tubo anguste cylindrico. — COAHUILA: by a brook in San Lorenzo Cañon, near Saltillo, September 21–23, 1904, *Edward Palmer*, nos. 392 (type, in Gray Herb.) and 394. A characteristic dwarf shrub closely simulating *S. suffrutescens* Watson, which, however, has very minutely pulverulent glandless branches, leaves, and calyx. The corolla of *S. spinescens*, as shown by Dr. Palmer's material, is very variable in color (as is that of *S. suffrutescens*); the material under no. 392 having the corolla canary-yellow passing to salmon, with the galea reddish; while no. 394 has the corolla of various shades of red, with yellow only on the sides of the galea.

SALVIA SANCTAE-LUCIAE Seem. Bot. Herald, 327 (1856). In the writer's synopsis of Mexican Salvias (Proc. Am. Acad. xxxv. 514), this plant was placed in the *Vulgares* and was taken to be the same as a plant of that section collected by Dr. Edward Palmer in Tepic. Subsequently the writer has studied Seemann's original material at Kew and it proves to be, not a plant of the *Vulgares* as stated by Seemann in the

original description, but a characteristic member of the *Membranaceae*. It is identical with the Tepic plant which the writer has described as *S. cladodes* (Proc. Am. Acad. xxxv. 497).

Salvia (Membranaceae) Langlassei, n. sp., suffruticosa; caule gracile duro flexuoso obtuse quadrangulato, ramis sordido-villosis; foliis ramorum membranaceis lanceolatis vel anguste ovatis basi rotundatis apice acuminatis 3–4.7 cm. longis 1.3–1.8 cm. latis acute serratis supra strigosis venis subtus pilosis, petiolis 5–10 mm. longis; racemo elongato; verticillis 9–14-floris demum 2–2.5 cm. distantibus; bracteis reniformibus acuminatis 6–9 mm. longis glabris lucidis purpurascens; pedicellis 4 mm. longis glanduloso-hispidis; calyce campanulato purpurascens glanduloso-hispido fructifero 8 mm. longo, labiis subaequalibus, superiore late ovato 1.5 mm. longo, inferiore cum lobis ovatis mucronatis; corolla violacea. — MICHUACAN or GUERRERO: in argillaceous soil of the Sierra Madre at 1700 meters altitude, January 27, 1899, *Langlassé*, no. 805 (type, in Gray Herb.). Closely related to *S. Sanctae-Luciae* Seem., but with slender stems said by M. Langlassé to be "volubile," thinner leaves with very different pubescence, and with shorter, broader calyx-lobes.

Salvia (Angustifoliae) urolepis, n. sp., herbacea circa 1 m. alta; caulibus gracilibus retrorse pubescentibus, pilis brevibus cinereis; foliis late lanceolatis vel anguste ovatis basi subcuneatis apice acutis 3.5–5 (–9) cm. longis crenato-serratis supra viridibus puberulis subtus albo-pannosis, petiolis gracilibus 1–2 cm. longis pilosis; racemis gracilibus, primariis 1.2 demum 3 dm. longis; bracteis lanceolato-attenuatis 9–13 mm. longis deciduis; verticillis 12-floris demum 3–3.5 cm. distantibus; calyce tubuloso-campanulato fructifero 6–7 mm. longo caerulescente albido-piloso, labiis subaequalibus, superiore late ovato mucronato, inferiore cum lobis deltoideo-ovatis subaristatis; corolla azurea 12–16 mm. longa, tubo exserto, galea oblonga 4–6 mm. longa pilosa, labio inferiore 6–9 mm. longo cum lobo medio valde majore; stylo piloso. — NUEVO LEON, by brooks of the Sierra Madre above Monterey, August 25, 1903, September 4, 1904, and September 19, 1907, *C. G. Pringle*, nos. 11,906, 13,281, and 13,978 — all collected from the same colony (type, in Gray Herb.). Apparently most nearly related to *S. oblongifolia* Mart. & Gal., which differs in its narrower glabrous leaves, shorter and broader bracts, and the greener somewhat viscid puberulence of the calyx.

SALVIA LAVANDULOIDES HBK., var. **LATIFOLIA** Benth. Pl. Hartw. 21 (1839), and in DC. Prodr. xii. 303 (1848) as *nomen nudum*; Fernald, Proc. Am. Acad. xxxv. 506 (1900). A fine collection of this plant, made by Mr. E. W. Nelson at an altitude of 2125–3040 m. on Mt.

Patamban, MICHUACAN, January 28-31, 1903 (no. 6575), exactly matches Hartweg's no. 171 which is the type of the variety. In studying the variety in the light of this more adequate material an important character is noted in the glabrous or glabrate lower surface of the leaves, those of typical *S. lavanduloides* being canescent-tomentose beneath.

Salvia (Angustifoliae) moniliformis, n. sp., caulibus altis minute pilosis; ramis elongatis valde ascendentibus; foliis ramorum lanceolatis utrinque acutis 3-4 cm. longis crenato-serratis supra viridibus strigosis subtus pallidis pilosis; racemis spiciformibus demum 3-4 dm. longis; verticillis 10-40-floris demum 8-9 cm. distantibus; bracteis lanceolato-ovatis attenuatis caeruleis albido-pilosis deciduis; pedicellis 1-2 mm. longis; calyce cylindrico albido-caeruleo piloso costato fructifero 8 mm. longo, labiis subaequalibus lanceolato-attenuatis 3 mm. longis; corolla caerulea circa 8 mm. longa, tubo paulo exserto, galea puberula, labio inferiore multo longiore. — MEXICO: open woods on hillside at 2735 meters altitude, Iztacihuatl, January, 1906, C. A. Purpus, no. 1720 (type, in Gray Herb.). Distributed as *S. lavanduloides* HBK., but more nearly related to *S. remota* Benth., which, however, has much smaller calyces (in maturity 4 mm. long) which are less prominently bilabiate.

Salvia (Vulgares) lilacina, n. sp., herbacea 1-1.5 m. alta; caulibus minute puberulis valde sulcatis purpurascens; foliis ovatis acuminate basi rotundatis 4-6 cm. longis serratis supra minute strigosis venis subtus strigosis, petiolis 5-10 mm. longis; racemis gracilibus permultis 6.5-12.5 cm. longis; verticillis 10-20-floris approximatis demum 1 cm. distantibus; bracteis lanceolato-aristatis 1.5 mm. longis caducis; pedicellis 2-3 mm. longis; calyce purpurascens tubuloso-campanulato 3-3.5 mm. longo strigoso, labio superiore ovato acuminato 1 mm. longo, labio inferiore cum lobis subaristatis; corolla lilacina 12 mm. longa pilosa, tubo ventricosus exserto, galea labiam inferiorem subaequante; stylo piloso. — MICHUACAN: near Uruapan, October 15, 1904, C. G. Pringle, no. 13,279 (type, in Gray Herb.). Closely related *S. Ghiesbreghtii* Fernald, which has the midrib of the leaf densely lanate beneath, the puberulence of the branches coarser, and the few racemes more elongate.

Salvia (Vulgares) uruapana, n. sp., herbacea annua, 7 dm. alta; caule gracile minute piloso, pilis retrorsis appressis, internodiis 3.5-10 cm. longis; foliis ovatis subcordatis acuminate 4-5 cm. longis 2.6-3.5 cm. latis crenato-serratis supra pallide viridibus minute puberulis vel glabratibus subtus cinereis minute pilosis vel glabratibus, margine pilosociliato; racemis elongatis, primariis 3 dm. longis; verticillis 3-10-floris

demum 3 cm. distantibus; bracteis lanceolato-caudatis demum 7-10 mm. longis; pedicellis demum 6-7 mm. longis tenuibus albido-pilosis; calyce tubuloso-campanulato fructifero 9 mm. longo 3 mm. diametro cinereo-piloso valde bilabiato, labio superiore oblongo acuminato 2.5 mm. longo, inferiore rectiusculo 4 mm. longo cum lobis lanceolato-aristatis; corolla azurea 12 mm. longa, tubo vix exserto, galea brevissima pilosa, labio inferiore multo longiore; stylo glabro. — MICHOCAN: lava fields, Uruapan, October 16, 1904, *C. G. Pringle*, no. 13,280 (type, in Gray Herb.). Strongly simulating *S. leptostachys* Benth., from which it differs in its much longer, more slender, and unequally cleft greener calyx, the longer, more pubescent pedicels, and the more copiously pilose leaf-margin.

Salvia (Vulgares) *lenta*, n. sp., caulibus lentis gracilibus 5 dm. altis pilosis, pilis cinereis nodulosus; foliis ovatis acuminatis basi subcuneatis 6.5-9 cm. longis 3.5-4 cm. latis argute serratis utrinque pilosis; petiolis 1-1.5 cm. longis; racemo elongato 2 dm. longo; verticillis 8-12-floris demum 1.5-2 cm. distantibus; bracteis lanceolato-ovatis acuminatis pilosis deciduis; pedicellis demum 2-3 mm. longis pilosis; calyce tubuloso-campanulato circa 4 mm. longo dense piloso, pilis albidis nodulosus, labio superiore ovato obtuso 1 mm. longo, inferiore breviori cum lobis deltoideis acutis; corolla caerulea minute pilosa 1 cm. longa, tubo exserto, labiis subaequalibus; stylo piloso. — MICHOCAN or GUERRERO: in granitic soil, at 1100 meters altitude, Real de Guadalupe, September 10, 1898, *Langlassé*, no. 343 (type, in Gray Herb.). Nearly related, apparently, to *S. Warszewicziana* Regel, which has broad cordate acuminate bracts, a second inflorescence, and the lips of the corolla very unequal, the upper glandular.

Salvia (Vulgares) *fallax*, n. sp., fruticosa; ramis gracilibus elongatis lignosis brunnescentibus juventate dense sordido-villosis, pilis nodulosus; foliis ovatis acuminatis basi subcuneatis 6-11 cm. longis 3.5-6 cm. latis argute serratis utrinque pilosis, pilis albidis nodulosus; petiolis gracilibus villosis 2-5 cm. longis; racemis gracilibus 1-1.5 dm. longis; verticillis 3-6-floris demum 1 cm. distantibus; bracteis atropurpureis anguste ovato-caudatis deciduis; pedicellis demum 2 mm. longis; calyce atropurpureo tubuloso-campanulato hirsuto fructifero 5-6 mm. longo, labio superiore ascendente ovato acuminato, labio inferiore rectiusculo 1.5 mm. longo cum lobis deltoideo-aristatis; corolla azurea 9 mm. longa, tubo vix exserto, galea villosa, labio inferiore paulo breviori; stylo piloso. — *S. Sanctae-Luciae* Fernald, Proc. Am. Acad. xxxv. 514 (1900), not Seemann. — TEPEC: near the town of Tepec, January and February, 1892, *Edward Palmer*, no. 1964 (type, in Gray Herb.). Closely related to *S. lenta* Fernald

and apparently also to *S. Warczewicziana* Regel. In the writer's synopsis of *Salvia* published in 1900 he mistook this plant, from the description alone, for *S. Sanctae-Luciae* Seem.; but he has since examined Seemann's type and finds that it is not this plant but a species of the *Membranaceae* (see above).

Salvia (*Scorodoniae*) *rupicola*, n. sp., fruticosa; ramis gracilibus subteretibus lignosis albescentibus cortice fibrilloso, juventate brunnescentibus glanduloso-pilosis; foliis oblongis vel anguste ovatis crenatis utrinque obtusis 1-2 cm. longis supra rugosissimis viridibus hispidis glandulosisque subtus pallidis glanduloso-pilosis, petiolo 2-3 mm. longo; racemis gracilibus 4.5-9 cm. longis; rhachi purpurascente glanduloso-hispido; verticillis circa 8-floris remotis demum 1.5-2 cm. distantibus; bracteis ovatis 2 mm. longis; pedicellis 2 mm. longis; calyce tubuloso-campanulato livido fructifero 6 mm. longo glanduloso-hispido, labio superiore obtuso 1.5 mm. longo, labio inferiore obtuso vix 1 mm. longo; corolla circa 1 cm. longa, tubo ventricosissimo exserto; galea pilosa, labio inferiore paulo brevior; stylo piloso. — HIDALGO: on rocks, Ixmiquilpan, 1903, *C. A. Purpus*, no. 431 (type, in Gray Herb.). In habit similar to *S. fruticulosa* Benth., which has the branchlets, lower leaf-surfaces, calyces, etc., stellate-pannate; nearer related, apparently, to *S. Gonzalezii* Fernald, which is less fruticose, with darker branches, glandless softer pubescence, broad-ovate leaves, and larger calyx.

Salvia (*Scorodoniae*) *tepicensis*, n. sp., caulibus gracilibus obtuse angulatis dense piloso-hispidis, pilis viscidis; foliis oblongo-ovatis obtusis supra viridibus rugosis setosis subtus albo-villosis 3-3.5 cm. longis basi subcordatis, petiolo brevi gracili viscido-hispido; racemis simplicibus elongatis 1.5 dm. longis; verticillis 6-10-floris remotis demum 2.5-3 cm. distantibus; bracteis lanceolato-ovatis acuminatis dentatis 4 mm. longis; calyce azureo anguste campanulato fructifero 7-8 mm. longo valde costato, costis glanduloso-setulosis, labio superiore obtuso 3 mm. longo, inferiore obtuso 2 mm. longo; corolla azurea 1.5 cm. longa, tubo paulo ventricosissimo exserto, galea pilosa, labio inferiore multo longior; stylo villosissimo. — TEPIC: near the town of Tepic, January 5-February 6, 1892, *Edward Palmer*, no. 1984 (type, in Gray Herb.). Related to *S. Gonzalezii* Fernald and *S. rupicola* Fernald. From the former distinguished by its characteristic glandular spreading pubescence, the long lip of the corolla, and the villous style; from the latter by its more herbaceous character, its much longer pubescence (of branches, leaves, and calyx), its larger prominently costate calyx, and the longer corolla with a comparatively long lip.

Salvia (Scorodoniae) *dasycalyx*, n. sp., fruticosa 1.5 m. alta; ramis gracilibus valde quadrangulatis superne decussatim bifariam pilosis; foliis ramorum lanceolatis acuminatis basi subcuneatis 3.5–5.5 cm. longis paulo rugosis utrinque glabris vel venis supra pilosis venis subtus albidis, petiolis 2–5 mm. longis pilosis; paniculis densis thyrsoideis, secundariis 3.5–5 cm. longis; bracteis lanceolato-attenuatis 3–4 mm. longis; calyce turbinato circa 3 mm. longo purpurascens dense villosus, pilis albidis planis, lobis brevissimis latis; corolla violacea 7–8 mm. longa, tubo incluso, galea pilosa labiam inferiorem subaequante. — MICHOCAN or GUERRERO: in argillaceous soil at 1800 meters altitude, Sierra Madre, January 23, 1899, *Langlassé*, no. 779 (type, in Gray Herb.). Closely simulating *S. thyrsoiflora* Benth., from which it differs in its glabrous leaves and smaller shaggy-villous calyces.

Salvia (Cyaneae) *umbratilis*, n. sp., fruticosa 1 m. alta; ramis gracilibus puberulis; foliis membranaceis glabris rhomboideo-ovatis acuminatis basi cuneatis 8 cm. longis crenato-serratis, dentibus mucronatis; petiolis gracilibus 1.5–3.5 cm. longis; racemo 1.5 dm. longo; verticillis 2–6-floris demum 2 cm. distantibus; bracteis ovato-acuminatis 2 mm. longis subpersistentibus; pedicellis filiformibus 5–6 mm. longis divergentibus minute hispids; calyce campanulato demum 11 mm. longo valde 9-costato costis setulosis, labio superiore ascendente late deltoideo mucronato, labio inferiore 4 mm. longo cum lobis porrectis anguste deltoideis aristatis; corolla cyanea 2.5–3 cm. longa pilosa rectiuscula, tubo paulo ventricosus, galea 7 mm. longa, labio inferiore paulo brevior; stylo glabro. — MICHOCAN or GUERRERO: in argillaceous soil of damp forests, at 1200 meters altitude, Sierra Madre, February 19, 1899, *Langlassé*, no. 904 (type, in Gray Herb.). Nearest related to *S. phaenostemma* Donnell Smith, which has the leaves more rounded at base, the calyx longer and purberulent (with subequal lobes), and the pedicels ascending.

Salvia (Tubiflorae) *arbuscula*, n. sp., arborea vel fruticosa circa 2.5 m. alta; ramis lanatis, pilis brunneis; foliis ovatis oblique subcordatis acuminatis circa 1 dm. longis crenato-serratis supra viridescens tomentosis cum pilis stellatis subtus albido-pannosis cum pilis stellatis; petiolis 1–1.5 cm. longis stellato-tomentosis; racemis densis primario 2.5 dm. longo; verticillis 20–30-floris demum 3 cm. distantibus; bracteis minutis deciduis; calyce tubuloso-campanulato valde costato 5 mm. longo albido-lanato, labio superiore late deltoideo cuspidato 1 mm. longo, inferiore cum lobis anguste deltoideis mucronatis; corolla purpurea curvata 2.5–3 cm. longa vix ventricosa villosa, galea rectiuscula 7 mm. longa, labio inferiore 4 mm. longo; stylo glabro. —

MICHOACAN or GUERRERO: at 1500' metres altitude in the Sierra Madre, January 20, 1899, *Langlasse*, no. 767 (type, in Gray Herb.). A handsome species nearest related to *S. Rosei* Fernald, but abundantly distinct in the pubescence of its branches, calyx and corolla, as well as the small calyx and the glabrous style.

Hyptis (Hypenia § Longiflorae) Langlassei, n. sp., fruticosa circa 2 m. alta; ramis glabris rufescentibus; foliis crassis coriaceis glabris lanceolatis acuminatis basi subcuneatis, superioribus 1-1.7 dm. longis 2-3.5 cm. latis acute dentatis; panicula trichotoma ramis 1.5-2.7 dm. longis cymulas item semel vel bis trichotomas 2-7 cm. longas laxas patentibus gerentibus, rhachi glanduloso-puberulo; bracteis ovato-lanceolatis acuminatis integris puberulis, inferioribus 2.5 cm. longis, superioribus 1 cm. longis; pedicellis demum 4-11 mm. longis; calyce campanulato anthesi 4-5 mm. fructifero 8-9 mm. longo glanduloso-puberulo et glanduloso-hispido, pilis brevibus albidis squamosis; labiis patentibus lanceolato-aristatis; corolla sanguinea puberula 2 cm. longa, tubo infundibuliforme, galea 2-3 mm. longa lobis rotundis labiam inferiorem subaequante; staminibus stiloque exsertis glabris. — MICHOACAN or GUERRERO: in granitic soil at 1800 m. altitude, Sierra Madre, February 10, 1899, *Langlasse*, no. 854 (type, in Gray Herb.). Closely related to *H. Nelsoni* Fernald, of the mountains of Jalisco, which has the leaves broad and clasping at base, the pubescence much finer (that of the calyx merely a fine puberulence), and the hardly aristate calyx-lobes much shorter.

V. MEXICAN PHANEROGAMS — NOTES AND NEW SPECIES.

By C. A. WEATHERBY.

Anthericum tenue, n. sp., gracillimum scaposum, radicibus fasciculatis nonnullis apice nonnullis basin versus tuberoso-incrassatis, foliis marcidis in collo laxo fibroso 3 cm. longo supra radicem persistentibus foliis suberectis pluribus radicalibus subulatis duris glabris marginibus minute ciliolatis exceptis 1.5-2.8 dm. longis circa 1 mm. latis caule paulum brevioribus in apicem longum acicularem productis, caulibus gracilibus glabris 6-9-bracteatis ex speciminibus visis simplicibus 2.8-3.6 dm. altis, floribus in bractearum axillis 2-3-fasciculatis, pedicellis 7-10 mm. longis infra medium articulatis, perianthii segmentis 1 cm. longis albis (fide Nelsonii), staminibus quam perianthium tertiam partem brevioribus, antheris 3 mm. longis liberis, filamentis 4 mm. longis muricatis, capsulis immaturis ovoideis quam perianthium mar-

cescens duplo brevioribus. — GUERRERO: between Ayusinapa and Petatlan altitude 1500–2000 m., Dec. 14, 1894, *Nelson*, no. 2120 (in hb. U. S. Nat. Mus.). Near *A. leptophyllum* Baker, from which it differs in its even more slender habit, narrower and longer leaves, and several-bracted stem. Very similar also to *Echeandia Pringlei* Greenman, but with free anthers.

Anthericum uncinatum, n. sp., scaposum, radicibus medio incrassatis, collo radices dense fibroso, foliis (6–7) 8–12 cm. longis 6–10 mm. latis pallide viridibus saepius patentibus valdeque falcatis in siccis conduplicatis membranaceis marginibus manifestis albis cartilagineis ciliolatis lente nervatis, caulibus circa 3 dm. altis simplicibus scabris vel hirtellis 1–2-bracteatis bracteis setaceo-acuminatis chartaceis, pedicellis floriferis 5–7 mm. longis infra medium articulatis, perianthii flavi (?) segmentis 8–12 mm. longis, filamentis papilloso-crispatis circa 5 mm. longis antheris longioribus, capsulis immaturis brevibus ovoideis. — DURANGO: Otinapa, July 25–Aug. 5, 1906, *Palmer*, no. 437. Near *A. scabrellum* Baker, from which it differs in its cartilaginous-margined and strongly falcate leaves, similar to those of *A. drepanoides* Greenman. From the latter species it differs in its scabrous stem, smaller size, and fewer, chartaceous bracts. In *A. drepanoides* the bracts are about 5, and the lower are foliaceous and falcate, like the root-leaves.

Nemastylis (§ *Chlamydostylus*) *latifolia*, n. sp., bulbo ovoideo tunicis brunneis friabilibus, caule simplici subflexuoso in speciminibus visis circa 4.5 dm. alto folium unicum erectum bracteaeque vaginantem gerente, folio radicali uno lineari-lanceolato longe acuminato apice setaceo 3 dm. longo 1–1.5 cm. lato plicato valde nervato, folio caulino simili inflorescentia brevior vel eam aequante ejus vagina 3–3.5 cm. longa scariosi-marginata, bractea acuminata scariosi-marginata 7.5–8.5 cm. longa, spatha 5.3 cm. longa valvis acuminatis aequilongis vel exteriori paulum longiore, floribus in spatha 4, pedicellis filiformibus spatham aequantibus vel exsertis, perianthiis albis marcescentibus paulum caerulescentibus 3 cm. (?) latis, filamentis brevissimis minus quam 1 mm. longis, antheris 1 cm. longis connectivis angustis, styli ramis filiformibus antheras subaequantibus parte indivisa circa 1 mm. longa, fructu non viso. — GUERRERO: hills, near Iguala, alt. 915 m., July 29, 1907, *Pringle*, no. 10,391. Distinguished from all the other Mexican species hitherto described by its very short, almost obsolete filaments. In this respect it resembles some of the South American species, but is not satisfactorily referable to any of them.

Quercus (§ *Erythrobalanus*) *rysophylla*, n. sp., arborea magna, cortice nigricante aspera vel profunde sulcata, foliis integris ovato-

lanceolatis 14–21 cm. longis 4.5–8 cm. latis basi cordatis vel rarius truncatis in apicem acutum sensim angustatis apice (in foliis immaturis) arista gracili 3–4 mm. longa munitis coriaceis glabris vel subtus in axillis nervorum barbatis pallide viridibus subnitidis valde reticulato-rugosis nervis supra impressis subtus prominentibus marginibus leviter incrassatis durisque sicut nervis marginalibus, petiolis 5–7 mm. longis crassis supra planis tomentosis vel glabratis, stipulis persistentibus linearibus 1.2–1.5 cm. longis, floribus femineis 2–4 folii in axilla singula sessilibus, cupulae immaturae squamis late ovatis obtusis glabris vel minute furfuraceis, glandibus non visis. — NUEVO LEON: Sierra Madre, Monterey, *Pringle*, nos. 10,225, 10,226, 10,379. A well-marked species, nearest *Q. nectandraefolia* Liebmann.

Mirabilis Pringlei, n. sp., caulibus herbaceis circa 1 m. altis ramosis, ramis dense glanduloso-puberulentibus, foliis late ovatis vel suborbiculatis 7–10 cm. longis 5–9 cm. latis integris cordatis acutis vel breviter acuminatis ciliolatis praeter nervos glanduloso-puberulentibus subtus sparse et minute pubescentibus pilis brevibus adpressis, inflorescentiae foliis parvis subsessilibus, inflorescentia divaricato-cymosa non congesta, cymis breviter pedunculatis, involucris unifloris campanulatis glandulosis ejus laciniis ovatis obtusis in anthesi tubam subaequantibus, perianthiis pallide roseis 2.5–3 cm. longis cylindraceis basi paulum dilatatis et quam ovarium latioribus limbo angusto, staminibus 5 longe exsertis perianthii tubo duplo longioribus, anthocarpiis glabris tuberculatis circa 7 mm. altis 5 mm. latis pentagonis in angulis costatis basi late truncatis. — GUERRERO: under limestone cliffs, Iguala Cañon, alt. 915 m., July 23, 1907, *Pringle*, no. 10,384. Near *M. exserta* Brandege, from which it differs in its tuberculate, five-ribbed anthocarp and in the shape of its perianth which, at base, is broader than the ovary. From *M. Jalapa* and its immediate allies it differs, as does *M. exserta*, in its long-exserted stamens and style and in its more open inflorescence.

OXYBAPHUS GLABER Watson. The type material of this species consisted only of a portion of the panicle. The following amplified description, drawn up largely from the specimen of Mr. Pringle's cited below, may, therefore, be of service.

Perennial; stem stout, glabrous, 8 dm. high, simple below, branching above, the lower internodes numerous and short (2 cm. long); leaves linear, 4–8 cm. long, 3–6 mm. wide, thick, glabrous; panicle large and open, its branches opposite and strictly glabrous; involucres somewhat campanulate, 4–8 mm. high, about 1 cm. across when mature, glabrous or minutely strigillose with short yellow hairs, on slender glabrous pedicels 4–8 mm. long; flowers cleistogamous (?),

the perianth inconspicuous, equalling or shorter than the involucre; fruit lance-ovate in outline, acute at the apex, narrowed at the base, with five narrow but prominent smooth ribs, the space between more or less strongly tuberculate, glabrous or minutely strigillose between the ribs.— Am. Nat. vii. 302 (1873). — Kanab, South Utah, *Mrs. A. P. Thompson*. CHIHUAHUA: sand hills near Paso del Norte, Sept. 20, 1886, *Pringle*, no. 1126. A specimen from Kansas, sand hills, Kearny Co., Aug. 29, 1897, *A. S. Hitchcock*, no. 421b perhaps belongs here also.

There is in the Gray Herbarium a plant clearly referable to this species, but differing from the typical form in its pubescent pedicels and involucre. It seems worthy of recognition as: var. *recedens*, n. var., a forma typica differt pedicellis involucrisque pubescentibus. — CHIHUAHUA: between Casas Grandes and Sabinal, altitude 1550–1700 m., Sept. 4–5, 1899, *Nelson*, no. 6351.

In the course of a recent attempt to rearrange, with the aid of Mr. Standley's excellent monograph, the Mexican specimens of *Nyctaginaceae* in the Gray Herbarium, it became apparent that, under the Vienna Rules, several new combinations in the genus *Oxybaphus* were required. They are accordingly proposed here, as follows:

Oxybaphus texensis (Coul.), n. comb. *Allionia corymbosa*, var. *texensis* Coul. Contr. U. S. Nat. Herb. ii. 351 (1894). *Allionia texensis* Small, Fl. Southeast. U. S. 406 (1903). — *Coulter's* no. 912, from Mexico, but without more definite locality, should apparently be referred here.

Oxybaphus coahuilensis (Standley), n. comb. *Allionia coahuilensis* Standley, Contr. U. S. Nat. Herb. xii. 347 (1909).

Oxybaphus melanotrichus (Standley), n. comb. *Allionia melanotricha* Standley, l. c. 351. The following, not cited by Mr. Standley, belongs here: CHIHUAHUA: mountains near Pílares, 23 Sept., 1891, *C. V. Hartman*, no. 743.

Oxybaphus pseudaggregatus (Heimerl), n. comb. *Mirabilis pseudaggregata* Heimerl, Ann. Cons. et Jard. Genève. v. 183 (1901). *Allionia pseudaggregata* Standley, l. c. 356. — The following specimens belong here: SAN LUIS POTOSÍ: alt. 1850–2500 m., 1878, *Parry & Palmer*, no. 768; in montibus San Miguelito, 1876, *Schaffner*, no. 177. Vallée de Mexico, Guadalupe, 1er Août, 1865, *Bourgeau*, no. 651.

Urvillea biternata, n. sp., fruticosa 1–2 m. alta glabra vel ramulis minute pulverulentibus, ramis 3–5-costatis costis obtusis interdum rubris inter costas planiusculis vel leviter sulcatis, foliis biternatis, foliolis membranaceis glabris vel subtus praeter nervos sparse pubescentibus punctis lineisque pellucidis minute punctatis ovatis subtus

pallidioribus, terminalibus 11-15 cm. longis 4.5-5.5 cm. latis obtuse acuminatis mucronulatis supra medium paucis dentibus crenatis basi abrupte angustatis sicut in petiolulam alatum 1-2 cm. longam, lateralibus similibus minoribus interdum obliquis acumine brevioribus, inflorescentiae paniculis angustis axillaribus longe (ad 8 cm.) pedunculatis 2-cirrhis, sepalis 5, 3 mm. longis concavis obtusis late ovatis minute pubescentibus duobus exterioribus paulum minoribus, petalis 4, 3 mm. longis obovatis vel suborbiculatis unguiculatis rotundatis, duobus superioribus squamas gerentibus latas cucullatas apice in appendicem longam deflexam productas appendice et marginibus barbatus summo dorso crista dilatata subflabelliforme instructas, duorum inferiorum squamis minoribus margine barbatus summo dorso cuspidatis, disci glandis duobus oblongis basi latioribus et callosis inter callos concavis, staminibus 8, filamentis crassis extra sparse villosis, antheris introrsis, fructu trialato subobovato 1.8 cm. longo 1.3 cm. lato apice leviter emarginato vel rotundato basi subacuto. — GUERRERO: Iguala Cañon, alt. 915 m., July 24, 1907, *Pringle*, no. 10,380. An anomalous species, distinguished from all the other species of *Urvillea* by its biternate leaves. In habit it resembles some species of *Serjania*, but has the fruit of *Urvillea*.

Euphorbia (§ *Anisophyllum*) *chalicophila*, n. sp., erecta annua (?) basi ramosa, caulibus teretibus gracilibus 3.5-4 dm. altis dichotome ramosis pilis albis crispatis dense vestitis, foliis oppositis lanceolatis basi valde obliquis subcordatis falcatis acutis vel obtusiusculis brevissime petiolatis ab apice fere ad basin serrulatis pilosis, caulinis 15-19 mm. longis 3-5 mm. latis, involucri brevissime pedicellatis in cymosulas paucifloras bracteatas ad apices ramulorum congestis turbinatis 0.6 mm. altis extus glabris intus hirtellis non fissis, lobis ovato-lanceolatis pectinatis, glandulis transverse ellipticis 0.5 mm. longis subconcavis appendice rubra vel rubella 0.5 mm. lata integra vel emarginata, capsulis 1.5 mm. altis brevipedunculatis glabris vel sparse pilosis, seminibus laevibus griseis ovatis haud angulatis 1 mm. longis. — JALISCO: gravelly banks of gullies near Guadalajara, alt. 1525 m., October 12, 1903, *Pringle*, no. 11,846. In habit and in the characters of the involucre very like narrow-leaved forms of *E. brasiliensis* Lam., but differing in being pilose throughout and in its smooth seeds.

Euphorbia (§ *Anisophyllum*) *chamaecaula*, n. sp., perennis rupe-scens, caulibus ex apice radices pluribus prostratis ramosis compressis infra nodos paulum dilatatis glabris, foliis oppositis brevissime petiolatis late ovatis basi subcordatis obliquis apice obtusis integris glabris vel facie superiore sparse pilosis, caulinis 6-8 mm. longis 4.5-6 mm. latis, ramulinis minoribus, involucri in axillis foliorum solitariis vel apicibus ramulorum in cymosulas paucifloras aggregatis pedicellatis

campanulatis extus intusque glabris, lobis parvis ovatis fimbriatis, glandulis ellipticis 0.6 mm. longis, appendice conspicua alba flabelliforme integra vel crenulata 0.5 mm. lata, pedicellis 2.5 mm. longis vel brevioribus, capsulis 2 mm. longis 1.5 mm. latis subacute carinatis omnino glabris, seminibus pallidis oblongis apice apiculatis quadrangularibus inter angulos subtransverse vel irregulariter rugosis. — JALISCO: gravelly plain near Guadalajara, Oct. 14, 1903, *Pringle*, no. 11,848. Near *E. prostrata*, from which it differs as follows: *E. prostrata*, plant green, leaves strictly oblong, abruptly rounded at apex, capsules hairy on the angles, glands with very short or no appendages. *E. chamaecaula*, leaves mostly ovate, tapering somewhat to the obtuse apex, plant reddish, capsule entirely glabrous, glands with conspicuous white fan-shaped appendages.

Manihot intermedia, n. sp., fruticosa erecta 1-2 m. alta omnino glabra, foliis orbiculatis palmatis non peltatis fere ad petiolam profunde 7-8-lobatis, supra viridibus subtus pallidis venis albis reticulatis, lobis medianis foliorum inferiorum lanceolatis sinuata-lobatis infra apicem late et abrupte rhombeo-dilatatis apice setaceo-mucronatis, duobus lobis lateralibus parvis lanceolatis integris, lobis medianis foliorum superiorum leviter sinuatis nec lobatis nec rhombeo-dilatatis, petiolis limbo brevioribus vel eum subaequantibus glaucis, racemis brevibus 3-4 cm. longis 3-4 ad apicem ramulorum fasciculatis patulis, bracteis pedicellis aequantibus vel paulum superantibus lineari-setaceis, pedicellis 5-10 mm. longis saepe bracteas duas oppositas parvas infra medium gerentibus, florum masculorum perianthiis gamophyllis 5-lobatis campanulatis circa 15 mm. altis basi rotundatis extus glauco-caerulescentibus intus flavescenscentibus venosis extus intusque glabris, laciniis deltoideis tubo triplo brevioribus, staminibus longioribus perianthium aequantibus, capsulis glabris globosis in siccitate rugosis, seminibus laevibus ellipticis latere interiore planis vel obtusissime angulatis exteriore convexis. — GUERRERO; limestone cliffs of Iguala Cañon, alt. 915 m., July 29, 1907, *Pringle*, no. 13,938. Intermediate between *M. carthaginensis* and *M. acutiloba*, having nearly the foliage of the former but the flowers of the latter; and apparently differing from both in its bracted pedicels.

Ipomoea (§ *Pharbitis*) *igualensis*, n. sp., volubilis tota papilloso-hirsuta pilis plus minusve flavescenscentibus 2-3 mm. longis vel caulibus glabrescentibus, marginibus foliorum bractearum sepalorumque pilis similibus dense papilloso-ciliatis, foliis longe petiolatis (ad 2 dm.) ovato-orbiculatis cordatis breviter acuminatis 7.5-12 cm. longis 7-13 cm. latis, pedunculis petiolos subaequantibus vel superantibus 3-floris, inflorescentia capitata congesta, ejus bracteis duabus late ovatis cuspidatis

venosis membranaceis 17 mm. longis pedicellas brevissimas floriferas sicut involucrium includentibus et occultantibus, sepalis circa 13 mm. longis acutis, duobus exterioribus latioribus ovatis 5 mm. latis intus circa 10-nervatis, tribus interioribus lanceolatis 2-2.5 mm. latis, corolla 5 cm. longa pallide purpurea tubo angusto infundibuliforme, tubo et plicis dense pilosis, limbo glabro, capsulis non visis. — GUERRERO; Iguala Cañon, alt. 760 m., September 21, 1905, *Pringle*, no. 10,054. Apparently near *I. hirtiflora* Mart. & Gal., from which it differs in its almost setose pubescence.

JUSTICIA PACIFICA (Oerst.) Hemsl. Mr. Pringle's no. 10,145, from Balsas in the state of Guerrero, agrees excellently with Oersted's description. The original specimens were in fruit only and the species was doubtfully referred to *Justicia* by Hemsley. Mr. Pringle's plant shows a glabrous corolla 2.5 cm. long with the short tube and broad limb characteristic of *Justicia*. The species would seem, then, to be certainly a *Justicia* and allied to *J. furcata*, but differing from all forms of that species in its grayish-puberulent stem, spicate inflorescence, ciliate bracts and in the very broad white margins of its calyxlobes.

